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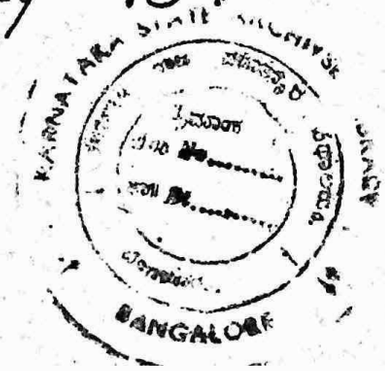
BEFORE THE KRISHNA WATER DISPUTES TRIBUNAL

IN THE MATTER OF A WATER DISPUTE REGARDING THE INTER-STATE RIVER KRISHNA AND THE RIVER VALLEY THEREOF

DOCUMENTS OF MYSORE

VOLUME - II
PARTS - VI - TO - XII
JANUARY - 1970



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VOLUME II (PARTS VI TO XII)

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DOCUMENT MYK. No. 61

CONFIDENTIAL

No. 648 PMO/67. Dated August 4, 1967.

Dear SHRI NIJALINGAPPA,

In recent months the differences between Andhra Pradesh, Maharashtra and Mysore on the question of the Krishna--Godavari waters have come to the force in public. Statement by Official spokesmen have tended to acquire a sharp edge, this has also been reflected in statements of other public figures such as Members of Parliament and the State Legislatures.

I am sure you will agree that the acrimony which is thus creeping into the discussions is not conducive to a calm consideration of the issues involved. I feel that it would be desirable for us to meet as early as possible, so that the different views can be discussed and an attempt made to hammer out agreed solutions in the larger interests of the country with due regard to the needs and aspirations of each State.

I should like to have a meeting of Three Chief Ministers on the 18th August 1967, in New Delhi. I hope the date is convenient to you. Could you please send me a note indicating the view-points of your Government in a week.

With kind regards,

Yours sincerely,
Sd
(INDIRA GANDHI.)

SHRI S. NIJALINGAPPA,
Chief Minister, Mysore State,
Bangalore.

DOCUMENT MYK. No. 62

IMMEDIATE. CMI 804/67, Encl : One.

Dated : August 15, 1967.

My Dear INDIRAJI,

Kindly refer to your letter No. 648/PMO/67, dated 4th August 1967.

I am enclosing a note explaining the Mysore's view point regarding the allocation of Krishna waters. I am sorry I could not send this earlier as I was busy with the work of the Legislature and had to visit Delhi and other places in the meanwhile.

Kind regards,

Yours sincerely,
Sd
(S. NIJALINGAPPA.)

Smt. INDIRA GANDHI,
Prime Minister of India,
NEW DELHI.

View Points of the Mysore Government regarding the Krishna Waters.

0.1 The Planning Commission, appointed in 1950, attempted to select in 1951, feasible and investigated projects in Krishna and Godavary basins to be taken up for inclusion in the First Five-Year Plan. Since the British Government had not cared to provide irrigation facilities by and large, very few projects were investigated in the Ex-Bombay territory. They had initiated only the Koyna Project for power production to meet power shortage in Bombay City, by diverting waters of Koyna to Arabian Sea. The Hyderabad Government was faced with difficulty in finding proper dam sites within their territory for the Upper Krishna. They concentrated their energies upon the Lower Krishna (Nandikonda) project. The Madras Government which had very little Krishna basin within their territory had planned a giant project namely Krishna-Pennar project to irrigate several lakhs of acres entirely outside the Krishna basin in the districts of Kurnool, Cuddapah, Nelloor, North Arcot, South Arcot and Chingelput right up to Chidambaram. The biggest project presented by the Government of Bombay was the Koyna project which was meant totally to divert the waters of the Krishna basin to the Arabian Sea for generation of power. The demands of all these projects was roughly of the order of 2,000 TMC. ft. whereas the then assessed availability of Krishna waters for the new projects was only about 1000 TMC ft. Under these circumstances, the Planning Commission in all fairness to the rights and needs of the river basins, should have rejected out right the extra basin demands of projects like Krishna-Pennar and Koyna. Had this been done, there was a fair chance of equitable allocations in the interest of the Krishna basin which is mostly famine stricken and neglected for centuries in the past. Instead of doing this, the Planning Commission merely allocated waters on a prorata basis, in proportion to the damands made by

each State, irrespective of the *bona fides* thereof or whether the projects were meant for the good of the basin or not. The result was each State got just half of what they demanded. In view of this the 1951 allocations are entirely unjust and inequitable and if enforced would have only resulted in perpetuation of famines and scarcities in the Krishna basin.

0.2 Secondly the Orissa State which also contributes to the Godavary basin materially was not even invited to the Conference Table in 1951 and no waters were allocated to that State. Thirdly, Government of Mysore did not ratify that 1951 Memorandum. In view of this the 1951 Memorandum is only a Memorandum and not any legal document. This position has been accepted by the Government of India *vide* Sri Hafiz Mohammed Ibrahim's Statement of 23rd March 1963.

1.1 After the States Reorganisation in 1956, the Central Water and Power Commission worked out reallocation of the Krishna waters as between the new States on the basis of so called 1951 allocations. They sought to allocate 983 T.M. Cft. (56.5 per cent) to Andhra Pradesh, 476 T.M. Cft. (27.2 per cent) to Mysore and 286 T.M. Cft. (16.3 per cent) to Maharashtra. The inequity inherent in 1951 allocations is obvious from the fact that Mysore contributing about 45 per cent of the Krishna basin was sought to be allocated with only 27.2 per cent of the waters and the Maharashtra contributing nearly 26 per cent of the water Krishna basin was sought to be allocated with only 16.3 per cent of the waters and the Andhra Pradesh contributing only about 29 per cent was ought to be allocated with 56.5 per cent of the Krishna Waters. Naturally, Mysore protested against this proposal. Mysore had been stressing the fact that the waters of any river first and foremost belonged to the basin itself. This means that until and unless the entire needs of the basin are fully met both for the present as well as the future, diversion of waters for use outside the basin should be ruled out.

1.2 Subject to the above principle, the waters of the Krishna or any other river need to be distributed between the various States concerned in proportion to the contribution made by each State to the vital factors connected with the basin such as geographical area, net sown area, cultivable area, scarcity and famine stricken area and population. These principles are by and large appreciated by the Government of India. Accordingly, Mysore is entitled to at least 47½ per cent of the Krishna waters.

1.3 The 1951 allocations were based on the basis of assessment of yields at 86 per cent dependability which is out of date in the modern days with widespread food scarcity and increased population to be fed. Mysore has been of the view that on all irrigation works (old and new), the waters should be utilised at 75 per cent dependability, so that maximum use of water is made and more food produced. This is the standard which is now accepted throughout the country generally.

1.4 The actual discharges at Vijayawada in accordance with the Weir formula employed for calculations threat result in under-estimate by at least 10 per cent. This was indicated by the Madras Research Station at Poondi after carrying out model experiments on the Vijayawada Anicut. The 75 per cent dependable yields after correcting gauges at Vijayawada would not be less than 2,150 T.M. Cft. Mysore demands 47½ per cent of Krishna waters not only on the principles enunciated above, but also is in a position to consume such fair share of waters, since the total requirement of its projects both in existence, under execution and under investigation are not less than 1,250 T.M. Cft. More over all the Mysore's projects are entirely within the Krishna basin, and would irrigate most arid but highly fertile lands in the Krishna basin.

1.5 Mysore and Maharashtra suggested that the surplus waters from Godavary could be diverted to meet the commitments of the Andhra Pradesh if any of Krishna waters most of which are outside the Krishna basin.

1.6 An Inter-State Conference called in September 1960 could not arrive at any agreement. All States except Andhra Pradesh, which stood to gain at the cost of others, sought *de-novo* allocation of waters on the basis of certain principles and could not agree to enforcement of so called 1951 allocations. The Government of India appointed the Gulhati Commission :

(1) to assess the needs of the States ;
(2) to assess the yields of Krishna and Godavary rivers ; and
(3) report on the possibility and extent of diverting Godavary waters to Krishna basin.

The commission after going in great details into the above aspects produced their report in 1962. The Report confirmed all the facts and figures on which Mysore has claimed its fair share of water. The Commission also confirmed the fact that nearly 300 T.M. Cft. of Godavary waters could be diverted to the Krishna to reduce the extra basin demand by Andhra Pradesh on Krishna waters. The Commission suggested that the link canal could be surveyed in six months time and a feasibility report prepared. The Commission also suggested preparation of a Master Plan for utilisation of the Krishna and Godavary waters for obtaining optimum benefits. The Commission's report also indicated that the gauge records at Vijayawada were on the low side and the further model experiments conducted at Khadakwasla and the Indian Institute of Science, Bangalore at the instance of the Commission.

2.1. On the basis of the Commission's report, Sri Hafiz Mohammed Ibrahim, the then Union Minister for Irrigation and Power made a statement in the Parliament on 23rd March 1963 that :

(1) 1800 TMCft. of Krishna waters are likely to be utilised by 1976 (Maharashtra 400 TMCft.) Mysore 600 TMCft. and Andhra Pradesh 800 TMCft).

(2) Nagarjunasagar Second Stage shall not be cleared until the possibility of diverting Godavary waters to Krishna is investigated and established.

(3) Steps should be taken to investigate the Godavary link and to prepare the Master Plan for the optimum utilisation of the waters of the two rivers.

2.2. However, since the Andhra Pradesh's share in Krishna waters cannot exceed more than about 25 per cent in view of its limited interest in the Krishna basin, and the actual requirements within the basin itself, Mysore protested against the proposed utilisation of 800 TMCft. by Andhra Pradesh and contended that the same should be limited to not more than about 600 TMCft. under any circumstances. Any excessive utilisation by Andhra Pradesh would be only at the cost of other States in general and Mysore in particular. Part 2 of para 2.1 above makes it clear that stage II of the Nagarjunasagar project cannot be considered in terms of the Krishna waters.

3.0 *Nagarjunasagar Project* :

3.1 The Nagarjunasagar project was sanctioned as a joint venture of the erstwhile Hyderabad and the Andhra States on the basis of the so called " 1951 Allocations ". The Krishna Pennar Project of the Madras State was opposed by Andhras mainly on the ground that the project irrigated areas far away from the Krishna valley neglecting the areas near the valley itself. It is significant that Andhra should think of irrigating areas outside the Krishna basin from waters of Krishna. The Nagarjunasagar project is also intended to predominantly irrigate areas outside the Krishna valley. The first stage of the project was to irrigate 21.00 lakh acres and some second crop on the Krishna delta with a full reservoir level at 525' above the mean sea level, as per the sanctioned project report. In 1955, the Planning Commission cleared only the first stage of the project without any commitments on further stages.

3.2 The Committee on Plan Projects which reviewed the project report in 1959-60, observed that 21 lakh acres could not be irrigated by Nagarjunasagar Dam alone with FRL of 525'. However, they observed that FRL of 540' at Nagarjunasagar Dam would be enough not only for the first phase but even for the further phases in view of the fact that the Sri Sailam Project meant for power production would add to the Storage to a great extent (308 TMCft.) as it was possible to integrate the operation of both the reservoirs, so as to result in optimum power production and irrigation at Nagarjunasagar project. This fact was accepted by the C.W. and P.C. Now since Sri Sailam has also been cleared and is under construction as a power project, there is no case at all for increasing the storage at Nagarjunasagar whether for the first stage or even for any future stages. Any concessions to increase the storage further would only provide a handle to Andhra Pradesh to build up further rights by providing irrigation outside the Krishna basin at the cost of the a rid regions in the upper States within the basin. In view of this, Mysore cannot aquiesce to the provision of gates at Nagarjunasagar. In fact Mysore has all along been protesting against the Nagarjunasagar project as well as Sri Sailam Project.

4.0. Westward diversion of Krishna waters for power generation in Maharashtra State.

4.1. The greatest need of the country is to produce more food for which every drop of water available has got to be utilised Judiciously. The waters of the Krishna can be put to the optimum use if they are applied to the fertile lands in the most arid regions. Since the major portion of the Krishna basin is arid and the waters available are much shorter than the total requirement for irrigation within the basin, there is absolutely no case for diverting waters outside the basin for any purpose and much less for generating power where the water is practically wasted to the seas.

4.2. The ex-Government of Bombay had planned the Koyna Hydro Electric Project to produce power by diverting practically the entire Koyna flows of over 100 TMCft. to the Arabian Sea. However, the Planning Commission restricted such diversions to 67·5 TMCft. only.

4.3 Mysore has been insisting that waters should not be diverted outside the basin for either power or irrigation purposes, since the available yields of Krishna are much less than the irrigation needs within the basin.

4.4 Despite this fact, the Maharashtra State it appears has been planning to divert more waters of Krishna by contemplating similar other projects on the tributaries of Krishna. This if allowed, would result in depleting the Krishna Valley of its precious waters and perpetuate famine and scarcity in the arid regions of the basin.

4.5 Belatedly Maharashtra is trying to show that waters diverted to the west would also be utilised for irrigation purposes and therefore does not constitute a waste. However, such a step would definitely be a waste of Krishna waters, since the west coast is endowed with 150″ to 250″ rainfall and over 400 TMC ft. of waters are available in the rivers flowing in the west coast. This water is now going waste. A portion thereof could be utilised by properly harnessing the same to meet the irrigational needs in the west coast. Instead of doing this, if Krishna waters were to be diverted to the west, it would be obviously a waste and denial of these waters for better use in the basin itself which is crying for waters.

The case of Mysore has been brought out in the above paragraphs. We feel that this matter cannot be delayed any longer. The Central Government will have to make up its mind to solve this matter once and for all and if this cannot be solved by any means, it may be referred to arbitration. Any delay would mean irreparable loss to Mysore which has the largest famine area in

Krishna basin. We have also to prevent unnecessary litigation by the public and by the people's representatives. They feel that the matter is being delayed to long. This matter will have to be decided now.

The Summary of the view points of the Mysore State.

(1) The 1951 Allocations are inequitable, unjust, illegal and hence unenforceable. This position has been accepted by the Government of India.

(2) Waters of river basin should be utilised to meet the needs of the basin itself.

(3) Inter State river waters should be allocated amongst interested States on certain equitable principles instead of on an ad-hoc basis.

(4) The waters of the Krishna river are much more than assumed in 1951, as verified by the Gulhati Commission.

(5) The Nagarjunasagar project is a product of the so called 1951 allocations which while intended to irrigate areas mostly outside the basin impinges upon the dire needs of the arid areas in the upper regions of the basin.

(6) There are surplus waters over and above the needs of the Godavary Valley which can be diverted to the Krishna Valley to meet the needs of the Andhra Pradesh outside the Krishna Valley. This has been verified by the Gulhati Commission.

(7) The Stage II of the Nagarjunasagar Project may be considered when the quantities of waters of the Godavary river and the levels at which they could be diverted to Krishna Vally are know. This has been suggested by the Gulhati Commission and accepted by the Government of India. In other words the Stage-II of Nagarjunasagar Project can be considered only in terms of Godavary waters.

(8) The waters of a river should not be diverted outside the basin for any purpose much less for generating power in which case the water is wasted to the sea denying the irrigation needs of the basin itself.

———

Water and Power Commission, it was felt that the costs could be reduced. Some clarification was also needed with regard to the cropping pattern.

Details of the broad features of these projects are shown in Statement I.

3. These two projects were examined in the meeting when suggestions were made with regard to some design points, which could result in reduction of costs, more important being the following :—

(i) omit the key trenches back-filled with concrete at the heel and toe ;

(ii) omit the concrete at the toe and the heel provided against higher stresses in Maharashtra design ;

(iii) reduce the length of the masonry section and replace it by earth or rock fill, and

(iv) increase the height of the spillway gates from 20 feet to 40 feet with corresponding reduction in the spillway length.

It was suggested that the Maharashtra Engineers should discuss these points with the Central Water and Power Commission design Engineers and arrive at revised cost. This has been discussed and the Maharashtra Engineers have not accepted the suggestion of increasing the gate height to 40 feet. They have accepted the other recommendations and worked out the costs. There is, however, still some difference in the technical opinion with regard to the minimum length of which the masonry portion should be constructed.

4. The Central Water and Power Commission have also re-estimated the cost of these dams taking into account the suggestions made as above. Comparative figures of the costs as initially worked out and as revised by the Maharashtra Engineers and those worked out by the Central Water and Power Commission are indicated in Statement II. The same statement also, shows relevant figures for dams constructed for irrigation projects in the Maharashtra State.

5. The question of cropping pattern was also discussed between the Maharashtra and Central Water and Power Commission Engineers. It is felt that Maharashtra's proposals in this regard are generally acceptable for the terrain, soil conditions and rainfall.

STATEMENT I

Salient Features of Pawarwadi and Shivdev Irrigation Schemes (West flowing) Maharashtra

Salient features	*Pawarwadi*	*Shivdav*
Catchment area at dam site (sq. miles)	47.3	109.35
75 Per cent of dependable yield (TMC)	11.6	27.9
Maximum height of dam over deepest foundation ..	233.00 feet	198.00 feet
Total length of dam	5,665 feet	18,650 feet
Masonry dam	5,180 feet	3,600 feet
Earth dam	485 feet (Saddle)	15,050 feet
Size of spillway gates	5 of 40′ × 20′	9 of 40′ × 20′
Gross Storage (TMC)	15.8	33.9
Live Storage (TMC)	11.3	22.02
Area to be irrigated (acres)	29,775	56,666
Cost of Dam	Rs. 1,465 lakhs	Rs. 2,064 lakhs

STATEMENT II

Comparative Statement of Cost of Dams per M.G.F.T. of live storage in Maharashtra

Sl. No.	*Particulars*	*Projects* — *Krishna*	*Wanra*	*Bhima*	*Jaykwadi*	*Ghod*	*Shivdev (with 20 ft. gates)*	
							CWPC	Mtra
1.	Maximum height (ft) ..	166	195	142	120	97	198	...198
2.	Gross Storage (TMC) ..	29.65	85.0	118.0	5.128	7.64	33.9	33.9
3.	Live Storage (TMC) ..	25.86	33.74	57.10	36.68	6.3	22.02	22.02
4.	Cost of Dam (Rs. lakhs) ..	1,816.6	1,378.9	1,977.9	2,038.6	579.7	1,155	2,064
5.	Cost per m.c. ft. of Live storage (Rs.)	7,010	4,070	3,460	5,550	9,600	5,250	9,380

STATEMENT II—*contd.*

Sl. No.	*Particulars*	*Shivdev (with 40 ft. gates)*		*Pawarwadi (with 20 ft. gates)*		*Pawarwadi (with 40 ft. gates)*	
		Mtra (revised)	CWPC	CWPC	Mtra	Mtra (revised)	CWPC
1.	Maximum height (ft.) ..	198	198	233	233	233	233
2.	Gross Storage (TMC) ..	33.9	33.9	15.8	15.8	15.8	33.9
3.	Live Storage (TMC) ..	22.02	22.02	11.3	11.3	11.3	11.3
4.	Cost of Dam (Rs. lakhs) ..	1,700	1,083	9,940	1,465	1,400	949.0
5.	Cost per m.c. ft. of Live storage (Rs.)	7,730	4,920	8,800	12,980	12,400	8,400

2. An alternate study of water availability for diversion of water from Godavari to Krishna basin.

1. This was one of the subjects to be discussed at the technical level of Chairman, CWPC (with the concerned staff) and Chief Engineers on the 4th October 1967. The following Chief Engineers and their staff from Maharashtra and Mysore were present :

1. Shri V. B. Manerikar, Maharashtra.
2. Shri B. S. Apte, Maharashtra.
3. Shri I. M. Magdum, Mysore.
4. Shri S. G. Balekundri, Mysore.

No representative from Andhra Pradesh attended the meeting.

2. As a flow up of the recommendations of the Krishna Godavari Commission and the statement made by the Union Minister of Irrigation and Power in the Parliament, the CW and PC undertook the investigation for a diversion project. Four sites on the main stem of the Godavari, *i.e.*, at Inchampalli, Albaka, Singareddipalli and Ippur were considered.

The Albaka and Singareddipalli sites were not considered suitable, as no suitable foundations for spillway were available. The Ippur site was also not considered suitable in the light of the investigations that had been carried out previously by the Andhra Pradesh Government. Inchampalli was found to be the only site on the main stem where suitable foundations were available, and a good outcrop of rock was visible.

During the fourth meeting of the Godavari-Krishna Chief Engineers' Technical Committee, Ippur site was suggested by Maharashtra, in preference to Inchampalli. The representative of Andhra Pradesh Government stated that the Ippur site had already been investigated by them, but was rejected because of the unfavourable foundation conditions. And, so, they were of the view that Inchampalli was the best site.

3. During the discussions in the Ministry of Irrigation and Power on 18th August 1967 the Maharashtra Government representative again suggested that, according to their view the storage demands of Krishna delta could be met from a reservoir at Ippur. But according to the representative of Andhra Pradesh Government, the Ippur dam site had already been investigated by them and was rejected because of unfavourable foundation conditions. It was suggested that the possibilities of alternative sites on the Pranhita and the Indravati for diversion of supplies to Krishna for its delta area should be considered.

4. During the course of the present discussions the Maharashtra Engineers stated that the Andhra Pradesh Government have suggested a project site at Ippur to the Krishna Godavari Commission. They, therefore, felt that a storage at this site should be possible. They were opposed to the site at Inchampalli, which submerges a lot of their areas. The Mysore Engineers also favoured a site on the main stem of the river. It was agreed that a site on the main stem of the river would be preferable.

It was agreed that as previously discussed in the Technical Committee there was water available for diversion. In view of the directive that alternatives to Inchampalli may be examined, the meeting decided to consider the sites on the tributaries *viz.*, Pranhita, Indravati and Sabari.

Hydel Projects have already been proposed by the various States to the K. G. Commission on these tributaries *viz.*, Watra Budruk on Pranhita. Bhopalapatnam on Indravati, Konta on the main Sabari and low Sileru on its tributary Sileru. These are terminal projects, where regulated releases would be available when the projects are sanctioned/constructed.

These three tributaries were considered individually.

5. *Pranhita.*—The Maharashtra Engineers stated that they have made a study of the 75 per cent dependable yield at Watra Budruk from the catchment lying in Maharashtra and Andhra Pradesh. They also mentioned that

they have not incorporated any contribution from M. P., and assumed that, that State will use all the waters generated therein. They added that Maharashtra's consumptive use for their territory will be only 400 TMC, against 530 TMC furnished to the K. G. Commssion.

According to the Maharashtra Engineers, the 75 per cent flows at Watra Budruk from their and Andhra Pradesh areas would be 670 TMC. Calculations by the CW and PC on *pro-rata* basis however, indicate the 75 per cent yield at about 782 TMC.

The total requirements upstream of Konta due to medium and major projects alone are indicated in the Krishna Godavari Commission's report as 217.0 TMC which are in excess of the yield anticipated at this site. In addition, there are several existing and proposed minor schemes, small tanks and diversions, whose requirements have to be catered for. Thus, no surplus water can be expected from the main Sabari at Konta.

8. *Sileru.*—On the Sileru, Lower Sileru Hydro-Electric Project (16C3-G12-A10) is the last on the chain of Hydro-Electric Projects with a dam at Donkarayi. The Andhra Pradesh Government in their project report of August 1963, have estimated that the continuous discharge at this site would be 3,300 cusecs or 104 TMC annually. Since no other consumptive uses have been indicated below this dam, we can get 104 TMC as regulated releases from the Lower Sileru in the Sabari basin.

9. Thus, the position regarding probable availability of water is as under :—

Sub-basin		*Regulated releases*	*Controlled*
		TMC	TMC
Pranhita	....	126	70
Indravati	....	252	41
Sabari (main)	....	Nil	Nil
Sileru	....	104	Nil
Total	....	482 TMC	111 TMC
Say	....	480 TMC	100 TMC

10. It is generally assessed that about 200 to 300 TMC diversion from the Godavari to the Krishna could be highly useful. The Krishna Godavari Commission felt that there were surplus flows in the Godavari and had suggested the investigation of fesibility for the transfer. The Central Water and Power Commission has been investigating the same.

The diverted flow would be required mostly during the monsoon season. It would, however, be necessary to have some cushion storage in order to even out the flows according to the needs.

From the above, it is seen that a controlled cushion of about 100 TMC is possible from Pranhita and Indravathi tributaries. It is also seen that regulated flows of about 480 TMC would be available.

STATEMENT I

Statement showing the 75 per cent yield at Phopalapatiam and Konta Dam sites and the amount of surplus water available at these sites after considering the U/S consumptive uses.

Name of sub-basin	*Reference to the study*	*Catchment area considered in the study sq. miles*	*75 per cent yield TMC*	*Yield per sq. mile of catchment area TMC*
1	2	3	4	5
Indravati ..	Based on 20 years series from 1941-42 to 1960-61.	16,380	801	0.0489
Sabari ..	do	8,237	330	0.04

Name of damsite	*Catchment area upto the damsite sq. miles*	*Yield up to damsite TMC*	*Total u/s utilisation TMC*	*Amount of regulated releases anticipated at damsite TMC*
1	6	7	8	9
Bhopala Patnam ..	14,013	685.23	392.40	292.83
(*a*) Konta ..	3,480	139.2 +65.5* =204.7	216.0*	11.30 (*)
(*b*) Lower Sileru ..	..	..	..	104.00 (**)

Remarks— (*) Regulated release from Balimela/Guntawada Project 65.50 TMC.

(**) As per project report of A.P. Government August 1963.

3. *Installation of Gates at Nagarjunasagar*

This subject was discussed at the technical level of the Chairman, Central Water and Power Commission (along with his concerned officers), and the Chief Engineers from Andhra Pradesh, Maharashtra and Mysore on the 5th October 1967. The meeting was attended by the following Chief Engineers:—

Andhra Pradesh

(i) Shri G. A. Narasimha Rao

(ii) Shri V. Suryanarayana

Maharshtra

(iii) Shri V. B. Manerikar

(iv) Shri B. S. Apte

Mysore

(v) Shri I. M. Magdum

(iv) Shri S. G. Balekundry

2. At the outset, Shri Narasimha Rao (Andhra Pradesh) raised the question whether the installation of gates was an Inter-State matter, and whether the design features of projects on inter-State rivers are within the purview of discussions with representatives from other States. He mentioned that such questions could be discussed only between the Centre and the State concerned. He cited the example of raising on the Koyna Dam, where in spite of their request, they were not brought into the picture.

Continuing, Shri Narasimha Rao mentioned that it is a lower State which is usually concerned with the storages and utilisations in the upper States, but that the upper States need not be concerned about these issues, as being the upper riparians, they could hold up the allocated waters.

Shri Magdum (Mysore) stated that they were attending this technical discussion as representatives of their respective States, and, therefore, the deliberations of this discussion could not be diverted from the inter-State aspect.

The Chairan, Central Water and Power Commission mentioned that the Chief Engineers are the highest technical officers of their Governments, and that their advice would normally influence decisions of their Governments. Also, that if at the technical level the matters could be clarified it might be possible to eliminate or at least narrow down the differences to a very large extent, which might help in the solution of the problem. He, therefore, suggested that the meeting should go ahead with the discussion at the technical level. The final dicision would, of course, rest with the State Governments. The Chairman, C. W. and P. C., also mentioned that we could argue for a long time if we started hair splitting between the distinctions of technical and political aspects of the problem, but that at a technical officers' meeting, we may not involve itself in such fruitless discussions.

3. Thus, having decided that the discussion may proceed mainly on the technical points, Shri Narasimha Rao (Andhra Pradesh) gave a brief resume of the Nagarjunasagar Project. He gave the history strating from 1954, and said that the complete project was designed for an F R L of 590. He also mentioned the various discussions and the examination by the COPP Team, which went into details of the Nagarjunasagar Project.

He stated that by experience and local experiments they have found that kharif irrigated dry crops are not popular or successful in the Nagarjunasagar command, and, therefore there is a clamour for allowing irrigated dry crops in rabi. He also mentioned that as the development of Nagarjunasagar command would take time they would like to use the total allocated quantum of 264 TMC for extra second crop. He also explained that, according to the Limitations Act, permitting a second crop does not confer any permanent rights unless uninterrupted use is allowed for 60 years. He also stated that they propose to give this water for second crop by rotation in blocks, which would obviate establishment of any rights. As such, they could withdraw that water

at any time. He also assured that they would not use more than 264 TMC allocated to them. He mentioned that in the utilisation of their allocated quantum of water, the other States should not have any objection.

Continuing further, he stated that Nagarjunasagar is a terminal reservoir, and therefore, could not influence the withdrawls upstream. The installation of the gates would permit them flexibility in cropping pattern and use of their allocated waters from the start rather than let these go to waste. He also assured that no work will be started on the second stage by way of canals, etc., and that this water will not be used in any area covered by the second stage.

He mentioned that in view of the upstream reservoirs coming into being their pattern of flows has changed to such an extent that they would run short of the needed supplies during the periods of 1st June to 15th July and November, December unless they could have some storage against the gates at Nagarjunasagar. He referred to the studies made by the COPP Team, according to which their needs would not be met, thus resulting in delayed sowings and heavy reductions in the crop yields.

The above position which pertains to the pre-Srisailam period does not improve very much in the post Srisailam period also, although, the periods of shortage may be somewhat different. According to him, the Electricity Board would own the Srisailam Project, and would control the releases, which would not necessarily be in the interest of irrigation. He also mentioned that the pace of construction of Srisailam is very slow, and it might be 10 to 15 years before it would be completed. Therefore, improvement, if any, in the pattern of regulation, will not be effective for a long period.

With regard to the Godavari diversion, he had his own doubts about water availabilities. He was also of the opinion that the two deltas should not be tied with each other, as a bad year in such a case would adversely affect

both the areas. He also mentioned that in the case of diversion, the regulation would need to be in the hands of the authority controlling the two deltas. He also mentioned the high probable cost involved in the diversion.

4. Shri Magdum (Mysore) asked whether the Nagarjunasagar Project was sanctioned as for two stages or as complete Project of the so-called 1st stage. He also raised the question whether the COPP Team's recommendations were formally approved by the Centre, and whether the utilisations now proposed by Andhra Pradesh have been accepted. He stated that the new proposed utilisations may completely change the scope of the project, where for a revised project is necessary. If so, this would need further consideration. He also wanted to know whether there was any change in the concept of the Srisailam Hydel Project, and whether it was supposed to be integrated with Nagarjunasagar or not.

5. Chairman, CW and PC, mentioned that replies to some of the points raised by Shri Magdum are included in what has been stated by Shri Narasimha Rao. He further mentioned that when Srisailam comes into the picture, there would naturally be some kind of integration between Srisailam and Nagarjunasagar. The Vice-Chairman, CW and PC, stated that the Srisailam will be a peaking station, and that releases would have to suit such needs. He however, clarified that releases of about 150 TMC would be effected more or less uniformly over the fair season.

As balancing capacity would be available at Nagarjunasagar, the releases from Srisailam could be utilised for irrigation without allowing any wastage in the fair season.

6. The discussion followed the lines whether the present proposals are as per the sanctioned project, and whether changes were now being made to modify the complexion of the project. Shri Narasimha Rao mentioned that even for the cropping pattern, as per the sanctioned project, the inflows would

not be sufficient to meet the demands on account of early monsoon flows being held by the upper storages, wherefor he quoted the example of the Koyana and Bhadra reservoirs. He also referred to working table in the COPP Team's to illustrate his point.

He further maintained that the Andhra Pradesh Government had the right to change the crop pattern so long as they did not exceed their total allocated quantum of 264 TMC, which would mean a change in the pattern of utilisations.

The Chief Engineers of Maharashtra and Mysore stated that the temporary use of water now permitted in the initial stage will become a permanent commitment, despite the quoted legal position and the assurances of the State Government. It was mentioned that it was the general experience that waters given to irrigators cannot be withdrawn at a later stage. There was therefore the apprehension that the temporary use now allowed would get established, and that the storage against the gates would lead to utilisations higher than the allocated quantity of water. They, therefore, maintained that there should be no provision in the construction, which should lead to such an irrevocable situation and withdrawals for utilisations higher than those planned in the sanctioned project.

Shri Magdum (Mysore) also stated that it is the general practice that Kharif sowings are permitted when the monsoon flows are received. If, therefore, by delay in the break of the monsoon, the sowings under this Project, also are somewhat delayed, this normal feature should be accepted.

Shri Narasimha Rao (Andhra Pradesh) stated that with the upper reservoirs in position, they would get no flows till very late in the season. He also felt that their needs of about 40,000 cusecs in the sowing period would not be met by releases from the upper reservoirs, as they would be anxious to retain the water received by them in the early part of monsoon season.

7. The question of monsoon flows was then discussed in detail. It was stated that it would take a long time before the storages in the upper States are constructed to hold up the flows, as was feared by Andhra Pradesh. It was also stated that the working table of the COPP Team was based on utilisation of half the allocation of the quantum by the upper States ; even this would not materialse for a number of years to come. It was also stated that by that time, Srisailam should be in position, and that integrated with the Nagarjunasagar storage, it should meet the cropping pattern sanctioned in the Nagarjunasagar Project.

It was also emphasised that the working table of the COPP Team is based on one year *viz.*, 1937-38 according to which the flow in June were said to be insufficient. As a matter of fact, however, the relevant flows, *i.e.*, for June, 1938, which are given in the K. G. Commission's report were substantial, and would cause no shortage. It was also agreed that for arriving at such a conclusion, the working table should be prepared for a series of years, which would include the good and the lean seasons. Shri Narasimha Rao (Andhra Pradesh), while agreeing in principle that this was the correct way of arriving at a conclusion, mentioned that they had not prepared working tables for any series of years.

Shri Apte (Maharashtra) offered to examine the working table for a 75 per cent year, which he presented somewhat later. He mentioned that 1944-45 was also a 75 per cent year with a total yield almost the same as in 1637-38. According to the working table prepared by him, there were substantial inflows in the months of June-July, and there was no difficulty like the one envisaged by Shri Narasimha Rao. It was not, therefore, correct to base the conclusions on the working table prepared only for one year by the COPP Team, but that the preceding and the succeeding years are equally important.

8. Shri Magdum (Mysore) stated that they were concerned only with the scope and pattern of inflows and relases, as per the sanctioned project, and therefore, there was no danger of the Nagarjunasagar Project suffering either before or after Srisailam on account of the upper storages. This would specially be so as the development of the sanctioned ayacut would take time. As such, there was no need for extra storage by gates.

He, therefore, stated that if the gates are required for the change of crop pattern and the scope of the project, it was not acceptable.

4. *Dependable Flows in Krishna River system*

Introduction

According to the 1951 memorandum of agreement on Krishna Godavari waters, the dependable annual flow in the Krishna basin, based on the recorded gauges at Vijayawada, was estimated at 1715 TMC (Thousand Million Cubic Feet). This flow was expected to be available in 86 years out of 100, *i.e.*, it was the 86 per cent dependability flow. It was also agreed at that time that this figure might have to be increased to allow for any omission in respect of any (then) existing utilisation in any State. The Chief Engineer of Madras, Shri Venkatachari, had also made a statement that the actual flow might be in excess of the recorded gauged flow at Vijayawada by 8 per-cent. This was noted in the memorandum of Agreement.

2. When the question of allocation of Krishna river flows was re-opened in 1961, one of the points raised was the availability of flows in the Krishna. The Krishna-Godavari Commission, which was set up in 1961, had, as one of its terms of reference :—

> " to report on the availability of supplies in the Krishna on the basins of annual flow at Vijayawada and other points taking into account upstream utilisation and allowing for regeneration—
>
> (i) for 86 per cent dependability, as assured in 1951 ;
>
> (ii) for 75 per cent dependability ; and
>
> (iii) for such other criterion of dependability as may be considered appropriate....."

3. The K. G. Commission after examination of all available data and discussions with the State Representatives, highlighted the fact that regular observations of discharge were made only at 21 site out of which data for a period of 20 years, or more, was available only for 5 sites, and for a period of 10 years for the other sites. The Commission was not satisfied regarding the reliability of the data made available for the above sites, and expressed their inability to give an estimate of the 75 per cent dependable yield of the Krishna basin upto Vijayawada.

Recommendations of the Krishna Godavari Commission

The Commission, therefore, recommended that an organisation should be set up to observe data for a number of years, and the data so collected should be analysed continuously in order to make an accurate assessment of the flows in the Krishna basin.

Accordingly, the Government of India set up a Gauging Circle in June, 1963. After setting up the various sites and procuring necessary equipment, observations were started in a regular manner from 1964–65. As such, complete flow data available is only for the year 1965–66 and 1966-67. It is not, therefore, possible to deduce the 75 per cent dependable yield from this data.

Model experiments for determining correct co-efficient of discharges for the Krishna anicut at Vijayawada.

In the absence of flow data by actual discharge measurement by current meter, recourse has necessarily to be had on the gauged observation at Vijayawada. Doubts had been expressed about the formulae adopted for working out the discharges from the gauges and also about the co-efficient adopted in the formulae.

Two dimensional model experiments to a scale of 1/48 had been carried out in 1949 at the Poondi Research Station, Madras, regarding the flow over the Krishna anicut at Vijayawada. This had disclosed that the discharges calculated from the formulae being followed at the time were giving an underestimate of the actual flows.

On a study of the data presented to them, the Krishna-Godavari Commission felt that it would be advisable to carry out a fresh series of experiments to determine the correct co-efficient of flow over the Krishna anicut. Accordingly, at the request of of the Commission, a fresh series of experiments were carried out at Central Water and Power Research Station, Poona, and also at the Indian Institute of Science, Bangalore. Three dimensional model experiments to a scale of 1/120 were also carried out by the Government of Andhra Pradesh at their Engineering Research Laboratories, Hyderabad.

Experiments at Poona indicated that the co-efficient of discharge was found to vary with the variation in head. It also indicated that at lower heads there was an error of about 5 per cent and that a suitable co-efficient had to be selected from the experimental results after observation of the upstream bed level.

The results of the experiments carried out at the Indian Institute of Sciences, Bangalore, indicated that the co-efficient to discharge increased from 2.0 for a head of 4 feet to 3.25 for a head of 25 feet over the anicut and concluded that the formulae in vogue could not be applied as the flow in the prototype was considerably oblique and the choice of the gauge location were not happy.

The Krishna-Godavari Commission calculated the river flows using the experimental results obtained at the Andhra Pradesh Laboratory for a period of 5 years. For want of time they could not calculate for the entire period for which gauge data is available. The recommended similar reconstruction of

of experiments at the Central Water and Power Research Station, Poona, to a scale of 1/35 up to 14′ depths and 1/50 for higher depths. These experiments are now in progress.

The Director, Central Water and Power Research Station, Poona is being asked to attend to points like silt charge, rigid bed, and wind effects.

Present guagings

5. In persuance of the statement made by the Union Minister for Irrigation and Power in the Parliament in 1963 the Central Water and Power Commission has started gauging the discharges at Vijayawada, and have calculated the flows for 1965-66 and 1966-67. Adding thereto the assessed upstream utilisations, the flows would be 2318 and 1879 TMC respectively.

The mode of observations is being refined with better equipment.

STATEMENT I

Statement showing the Reconstructed flow Data of Vijayawada after modification

(as supplied by Andhra Pradesh)

Serial Number	*Year*	*Annual flow volume at Vijayawada in TMC*
1	2	3
1	1901—02	1652.5
2	1902—03	1500.7
3	1903—04	2724.4
4	1904—05	1406.5
5	1905—06	953.9
6	1906—07	1515.9
7	1907—08	2092.6
8	1908—09	2180.4
9	1909—10	1776.3
10	1910—11	2017.2
11	1911—12	1104.9
12	1912—13	1976.0
13	1913—14	1428.5
14	1914—15	2987.3
15	1915—16	1916.4
16	1916—17	3209.9
17	1917—18	2510.1
18	1918—19	697.4
19	1919—20	1841.0
20	1920—21	1308.1
21	1921—22	1748.7
22	1922—23	1642.8
23	1923—24	2040.6
24	1924—25	1903.8
25	1925—26	1762.7
26	1926—27	1853.0
27	1927—28	1978.6
28	1928—29	1883.0
29	1929—30	1575.1
30	1930—31	1810.5
31	1931—32	2481.5
32	1932—33	2424.6
33	1933—34	2865.3
34	1934—35	1818.5
35	1935—36	1576.7
36	1936—37	1509.7
37	1937—38	1666.8
38	1938—39	2095.5
39	1939—40	1774.1
40	1940—41	1803.7
41	1941—42	1424.0
42	1942—43	1834.2
43	1943—44	2036.0
44	1944—45	1775.1
45	1945—46	1542.7
46	1946—47	2456.2
47	1947—48	2094.7
48	1948—49	1880.1
49	1949—50	2162.5
50	1950—51	2227.5

PART VII

Correspondence between Government of Mysore and Government of India regarding Crest Gates of Nagarjunasagar and appointment of a Tribunal during 1967.

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DOCUMENT MYK No. 64

S. Nijalingappa,
Chief Minister.

Bangalore,
Dated 12th June 1967.

No. CMI 271/67.

Dear Shri Raogaru,

Subject.—Allocation of Krishna Godavari Waters.

Kindly refer to D. O. Letter No PWD 1 BRA 59 (Part-III), dated 12th April 1967 from Shri Veerendra Patil, Minister for Public Works and Electricity addressed to you and also the reminder, dated 17th May 1967 on the same. It had been requested in the above letters to confirm that the Government of India stands by its earlier declaration that the clearance to the Second Stage of Nagarjunasagara Project will not be accorded till the report on the diversion of Godavari water to the Krishna is finalised and the Master Plan is drawn up.

2. It is learnt that the Government of Andhra Pradesh have placed orders with M/s. Jessops, Calcutta for the manufacture of the spillway gates required for the Second Stage of the Nagarjunasagara Project. It is also learnt that this proposal has been examined by the Central Water and Power Commission and that the Ministry of Irrigation and Power has also been approached. Any proposal for the procurement of gates and any commitment made on this would amount to an acceptance and commitment by the Government of India to the Nagarjunasagar Second Stage.

3. Such a commitment would be a clear violation and refutal of the statement made by the Union Minister for Irrigation and Power in the Lok Sabha on 23rd March 1963, when it has been clearly stated that the question of clearnance of the Nagarjunasagar Stage-II could be considered only after the investigations on diversion of Godavari supplies are completed and the quantum and levels of such diversion are known. This Government is not

aware of any report having been submitted by the Committee of the Chief Engineers appointed by the Government of India with regard to the study of the possibility, programme and economics of the diversion of Godavari waters. In the absence of any such report, and the correct assessment of availability of waters for diversion from the Godavari valley to Krishna valley, and commitment by the Government of India even by way of acceptance of proposals for the fabrication of the spillway gates required for the Nagarjunasagar Project Stage-II would amount to setting aside, the assurances previously given by the Government of India with regard to taking up of the Nagarjunasagar Project Stage-II.

4. According to the Press Reports, the Chief Minister of Andhra Pradesh has made a statement, while in Bangalore recently, that the phasing of the Nagarjunasagar Project into stages was only for financial convenience and that the project as a whole is an accepted fact. This statement of the Chief Minister of Andhra Pradesh and the report that the spillway gates for the Nagarjunasagar Reservoir are already under manufacture has made this Government feel apprehensive and agitated that the Nagarjunasagar Project Stage-II will be a *fait accompli* before the question of diversion of Godavari waters to Krishna Valley is finalised. This action of the Andhra Pradesh Government in placing orders for the spillway gates and for getting them manufactured and to meet the cost thereof from the assistance given by the Government of India for the execution of the Nagarjunasagar Stage-I, would amount to flagrant violation of the assurances given by the Government of India. At some stage or other this fact may have come to the knowledge of Government of India.

5. I would therefore request you to inform me as to the action that has been taken by the Government of India or is proposed to be taken to stop the Government of Andhra Pradesh from proceeding with the execution of the

Second Stage of Nagarjunasagar Project in violation of the clear directions contained in the statement made by the Union Minister for Irrigation and Power in Parliament on 23rd March 1963 and also the various assurances given to this Government that the Nagarjunasagar Stage-II will not be permitted to be proceeded with by the Andhra Pradesh Government till the diversion of Godavari Waters into Krishna basin is finalised.

With kind regards,

Yours sincerely,

Sd.

(S. NIJALINGAPPA,)

Chief Minister.

Dr. K. L. Rao,
Union Minister for
Irrigation and Power,
New Delhi.

DOCUMENT MYK No. 65

MIP-260/S/67.

GOVERNMENT OF INDIA,
MINISTRY OF IRRIGATION AND POWER
New Delhi, 28th June 1967.

Subject.— Allocation of Krishna-Godavari Waters.

My dear Shri Nijalingappa Garu,

Kindly refer to your D.O. No. CM-I/271/67, dated 12th June 1967 on the above subject. There appears to be a lot of misunderstanding regarding Nagarjunasagar Project and I wish to clarify the position as below :—

2. Nagarjunasagar Project was started in 1955 and the foundation stone was laid by late Pandit Jawaharlal Nehru on 10th December 1955. The Project was first prepared by the then States of Andhra and Hyderabad and the joint estimates and designs were printed as 'Nandikonda Project' in 1954 and submitted to the Planning Commission for sanction. The estimated cost of the entire Project was Rs. 122 crores. A meeting was held in February 1955 in the Planning Commission to consider this Project. The Governor of Andhra, the Chief Minister of Hyderabad, representatives of the Ministry of Irrigation and Power and the Ministry of Finance were present at this meeting. As the Planning Commission thought at that time that there were no sufficient funds for taking up the entire Project the scope of the sanctioned project was limited to about Rs. 85 crores. Detailed estimates were subsequently prepared and a formal sanction was issued in 1960 for Rs. 91.12 crores.

3. The design for the Project was prepared by the Central Water and Power Commission in 1956-58 and was printed in 1958. The Project is being constructed strictly according to the designs and specifications laid down in this volume. It will be seen from Plate 27 of this volume that the gates were

contemplated even at that stage and the FRL of the reservoir was 590. The estimates were reduced from Rs. 122.00 cores to Rs. 91.12 cores only with a view to limit the investment in the first phase and derive early benefits.

4. The Irrigation and Power Team of the Committee on Plan Projects of the Planning Commission reviewed the Nagarjunasagar Project in 1959-60. One of their principal recommendations was that the spillway should be built upto crest level instead of stopping it at RL 525 as provided in Rs. 91.12 crores estimates. This recommendation was made by them as the extra masonry work involved was small and the extra cost of this work if done in continuation of the sanctioned project, would be only Rs. $2\frac{1}{2}$ crores. The Committee felt that if this work was postponed, the cost could be much more and the balance of advantage was in completing the dam up to the crest level in one continuous operation. This recommendation was made before the present controversy started in September 1960. It was accepted by the Andhra Pradesh Government and also the Nagarjunasagar Control Board. The estimates of the Project were recast taking into account other recommendations also and the rise in prices etc. In this revised estimate cost of the embedded parts for crest gates such as sill beams and guide plates have been provided, but not the cost of the gate leaves. It may be mentioned here that both the 1955 estimate and the revised estimate of 1960 provided for the construction of the dam to the full section for FRL 590. The Earth dam and the non-overflow sections have accordingly been completed for this level.

5. It may be mentioned that during the coming flood season the reservoir is expected to rise to about FRL 590.00. All the water flowing over the spillway would go waste fully to the sea. Installation of gates would assist in conservation of the water partially. The installation of the gates would not in anyway increase the full reservoir level. This is an important fact which has got to be borne in mind when considering the question of crest gates at Nagarjunasagar.

8. Nagarjunasagar Stage-II would involve the following items of work : (i) the construction of a second tunnel on the right side for letting in additional supplies for the Second Phase, (ii) the lining of the main canals ; (iii) extension of the right bank canal by more than 100 miles to supply water for the Second Phase. At present, there is only one tunnel on the right side capable of passing water for the First Phase only ; therefore the second tunnel has to be constructed before additional supplies could be used. The Second Phase is likely to cost more than Rs. 60 crores. The Andhra Pradesh Government has, however, not prepared any estimate for the Second Phase, nor have they suggested to the Government of India that they may be authorised to undertake this work. The installation of the crest gates cannot, in any way, be taken as a beginning of work on Stage-II.

9. From the above it will be seen that the Centre has not approved Stage-II of the Nagarjunasagar Project. Even in respect of the installation of crest gates, various aspects of the proposal as set out above are under examination in the Ministry of Irrigation and Power.

With best regards,

Yours sincerely,
Sd.
(K. L. RAO.)

Shri S. Nijalingappa,
Chief Minister of Mysore,
Bangalore.

8. Nagarjunasagar Stage-II would involve the following items of work : (i) the construction of a second tunnel on the right side for letting in additional supplies for the Second Phase, (ii) the lining of the main canals ; (iii) extension of the right bank canal by more than 100 miles to supply water for the Second Phase. At present, there is only one tunnel on the right side capable of passing water for the First Phase only ; therefore the second tunnel has to be constructed before additional supplies could be used. The Second Phase is likely to cost more than Rs. 60 crores. The Andhra Pradesh Government has, however, not prepared any estimate for the Second Phase, nor have they suggested to the Government of India that they may be authorised to undertake this work. The installation of the crest gates cannot, in any way, be taken as a beginning of work on Stage-II.

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With best regards,

Yours sincerely,
Sd.
(K. L. RAO.)

Shri S. Nijalingappa,
Chief Minister of Mysore,
Bangalore.

DOCUMENT MYK No. 66

S. NIJALINGAPPA,
Chief Minister of Mysore.

VIDHANA SOUDHA.
Bangalore, dated 17th July 1967.

No. CMI/639/67.

Dear Raogaru,

Subject :—Allocation of Krishna-Godavari Waters.

I thank you for your kind letter No. MIP-260/6-67, dated 28th June 1967.

Your letter has been examined in detail. It is seen that the Planning Commission in its meeting held on 24th February 1956 have given acceptance to the Nandikonda Project (Nagarjunasagar Project) Stage-I only and it has been clearly laid down that this involved no commitments whatsoever in regard to other projects on the Krishna. It is also seen from the report of the Irrigation and Power Team of the Committee on Plan Projects of the Planning Commission that the Nagarjunasagar Project Stage-I as contemplated had a full reservoir level of only R. L. 525 during the first stage ; and it was recommended by that Committee that the Dam be built to its final height in the first phase with the cill of spillway gates kept at R. L. 546 and installation of the spillway gates deferred to the final phase. Further it is also seen from the particulars given in Annexure-X of the report of the Krishna-Godavari Commission that the full reservoir level of the Nagarjunasagar Project as under execution (First Stage) is only R. L. 546.

From the above particulars, it is clear that the erection of the spillway gates across the Nagarjunasagar Project is only a part of the Nagarjunasagar Project Stage-II.

The details of Nagarjunasagar Stage-II as spelt out in Para 8 of your letter do not therefore appear to be correct and should include the supply and erection of the spillway gates also.

It appears on the whole from your letter that you have made out a case to say that providing the crest gates across the spillway of Nagarajunasagar Project Stage-I and that providing of the gates will assist in the conservation of water, otherwise going wastefully to the sea.

Installation of gates for conservation of water will only mean creation of additional storage. Once the storage is created it would be difficult to prevent its utilisation. Therefore, every attempt will be made to utilise the storage so created. Thus, installation of gates in the name of conservation of water would amount to permitting the construction of Second-Stage now itself. Any additional utilisation over and above that which has been provided in the original project of Nagarjunasagar Stage-I will mean only the utilisation now itself of the waters that were proposed to be utilised after the Stage-II was completed. Such a proposal would mean executing the Nagarjunasagar Project Stage-II now itself as against the commitment made previously in March 1963 by the Government of India that the Nagarjunasagar Stage-II may be cleared after investigation on diversion of Godavari supplies are completed. Any commitment on the part of the Government of India towards the erection of gates across the spillway of Nagarjunasagar Project now would mean a violation of the statement made by the Union Minister for Irrigation and Power in the Lok Sabha on 23rd March 1963 and will seriously jeopardise the interests of the upper-riparian States.

I am therefore constrained to protest against allowing the Government of Andhra Pradesh to go ahead with the manufacture of the spillway gates for the Nagarjunasagar Project in the First Stage itself. I am to request you to immediately put a stop to the manufacture and erection of the spillway gates of Nagarjunasagar Project.

If no effective steps are taken in the matter, the Government of Mysore would be compelled to press for the adjudication of this problem as requested earlier.

Yours sincerely,
Sd.
(S. NIJALINGAPPA)

Dr. K. L. Rao,
Union Minister for Irrigation and Power,
Government of India,
New Delhi.

DOCUMENT MYK No. 67

GOVERNMENT OF MYSORE

No. PWD 1 BRA 59

MYSORE GOVERNMENT SECRETARIAT,
Vidhana Soudha,
Dated, Bangalore 14th August 1967.

From

The Secretary to the Government of Mysore,
Public Works and Electricity Department,
Bangalore.

To

The Secretary to the Government of India,
Ministry of Irrigation and Power,
New Delhi.

Sir,

Subject :—Allocation of Krishna and Godavari Waters.

I am directed to state that it has been brought to the notice of this Government that the Andhra Pradesh Government are contemplating the manufacture and erection of spillway gates across the Nagarjunasagar project.

It is seen that the full Reservoir level of the Nagarjunasagar Project Stage-I as contemplated under the joint project of the Governments of Hyderabad and Andhra Pradesh which was cleared by the Planning Commission in February 1955, was only R. L. 525.

In July 1960, the Committee on Plan Projects of the Planning Commission after review of this Project recommended that the crest of the spillway be kept at R. L. 546 and defer the installation of the spillway gates to the final phase. Further from the particulars given in Annexure-X of the report of

the Krishna-Godavari Commission it is seen that the full reservoir level of the Nagarjunasagar Stage-I is only R. L. 546. From the above particulars, it is clear that the erection of the spillway gates across the Nagarjunasagar Project is not a part of Stage-I but is to be considered in Stage-II.

Installation of gates in the name of conservation of water would amount to the permitting of the construction of the Second Stage of Nagarjunasagar Stage-II now itself. Such a proposal would mean executing the Nagarjunasagar Project Stage II now itself as against the commitment made in March 1963 by the Government of India that the Nagarjunasagar Stage-II may be cleared only after investigations on diversion of Godavari supplies are completed. Any commitment on the part of the Government of India towards the erection of gates across the spillway of Nagarjunasagar Project now would mean a violation of the statement made by the Union Minister for Irrigation and Power in Lok Sabha on 23rd March 1963 and will seriously jeopardise the interests of the Upper riparian States.

I am therefore directed to request you to immediately see that the Government of Andhra Pradesh is not allowed to go ahead with the manufacture of the spillway gates for the Nagarjunasagar Project and to put a stop to the work of manufacture and erection of the spillway gates taken up by that State.

Yours faithfully,
Sd.
(CHANDAPPA PATEL),
Secretary to Government,
Public Works and Electricity Department.

DOCUMENT MYK No. 68

GOVERNMENT OF MYSORE

S. NIJALINGAPPA,
Chief Minister.

MYSORE GOVERNMENT SECRETARIAT,
Vidhana Soudha,
Bangalore, dated 24th October 1967.

D.O. No. CMI. 1173/67/Encl.

Dear Indiraji,

During the recent meeting of the Chief Ministers of Maharashtra, Mysore and Andhra Pradesh held in your chambers on 6th October 1967, the Chairman, Central Water and Power Commission confirmed that erection of crest gates was not a part of the Stage-I of the Nagarjunasagar Project.

Our discussions in the matter of sharing of the Krishna waters were inconclusive as the data in regard to the flow of the river was not, we were informed, complete. The Chairman, Central Water and Power Commission gave us to understand that the studies in the assessment of the yield on the basis of three dimensional model which was in progress in the Central Research Station in Khadakvasla (Poona) would take about two months.

From the reports appearing in the press it appears that the Government of Andhra Pradesh considers the erection of crest gates of the Nagarjunasagar, as being a matter purely concerned with that State alone. Such a statement implies that the Andhra Pradesh Government would be free to instal the gates without any regard to the objections raised by the upper riparian States, *viz.*, Mysore and Maharashtra. As a matter of fact, according to the information available, certain concrete steps have already been taken by the Government of India may also be in the know of these steps.

The Government of Mysore have made it clear on more than one occasion that any increase in the scope of the Nagarjunasagar Project without finding out the feasibility of diversion of the Godavari waters would be highly

of the basin situated in the Mysore State. If, after the studies at Khadakvasla are completed, further discussions are to have any meaning, then it is necessary that action on the crest gates is freezed immediately. I therefore request you that—

(*a*) the Andhra Pradesh Government may be instructed to stop all actions on the crest gates ;

(*b*) the model studies at Khadakvasla may be completed before the end of November 1967 as promised during our discussions so that in the light of the results so obtained we could hold the discussions for final settlement of the question of sharing of Krishna waters.

In the circumstances, I request that the Government of India should issue instructions immediately prohibiting further action on the installation of the crest gates. If it is not possible to issue such instructions, then further discussions on the question of sharing of the waters will be of no avail. In such an event, I would request that the matter may be referred to a tribunal as requested earlier by the State Government in letter No. PWD 24 BRA 59, dated 28th July 1967.

With kind regards,

Yours sincerely,
Sd.
(S. NIJALINGAPPA.)

Smt. Indira Gandhi,
Prime Minister of India,
New Delhi.

Enclosure :

Extract of Paragraph 3 of the Note on Srisailam Hydro-Electric Project, enclosed to G.O.I's letter, dated 13th July 1963.

3. On the basis of the assumption given in the Krishna-Godavari Commission's report, and data available in the C.W. and P.C., it is estimated that the release from Srisailam may be of the order of 208 T.M-Cft. in the Post-Godavari diversion stages as per details below :—

	T.M.C.
(*a*) Withdrawals under Nagarjunasagar Stage—I (Pre-Godavari diversion Stage.)	264
(*b*) Replacement by Godavari Waters (as per areas suggested by the Krishna-Godavari Commission).	55
(*c*) Net diversions under Nagarjunasagar Stage—I (in the Post-Godavari Stage). (*a*)—(*b*).	209
(*d*) Evaporation losses at Nagarjunasagar	14
(*e*) Inflow required at Nagarjunasagar (*c*) + (*d*). ...	223
(*f*) Inflow between Srisailam and Nagarjunasagar Sites	15
(*g*) Net release from Srisailam (*e*)—(*f*)	208

DOCUMENT MYK No. 69

PWD 1 BRA 59. 24th October 1967.

Secretary to the Government of Mysore,
Public Works Department, Bangalore-1.

To

The Secretary to the Government of India,
Ministry of Irrigation and Power,
New Delhi.

Sir,

Subject.—Allocation of Krishna and Godavari Waters.

I am directed to state that from a report appearing in the press it is seen that Government of India has asked the Andhra Pradesh Government to go ahead with the installation of Crest-Gates on Nagarjunasagar Dam (Extract of 'the Hindu,' dated 17th October 1967 enclosed). Such a direction from the Government of India, if it is true, is clearly against the technical view expressed by the Chairman, Central Water and Power Commission that the installation of Crest-Gates was part of the Second Stage of the Nagarjunasagar dam and therefore should not be taken up now. Therefore, any action by the Government of India to agree to the Installation of Crest-Gates would amount to the clearance of the Nagarjunasagar Second Stage in an indirect manner and would be contrary to the statement made by the Union Minister for Irrigation and Power on 23rd March 1963 that the clearance to the Nagarjunasagar Project Second Stage would be considered only after the diversion of Godavari waters to the Krishna is finalised. Under the circumstances I am directed to convey very strongly the protest of this Government against any acceptance of the installations of Crest-Gates on Nagarjunasagar Dam in the First Stage itself. I am also directed to request that installation of Crest-Gates which form part of the Second Stage may not be allowed without final settlement of the question of sharing of Krishna Waters.

2. I request favour of urgent reply on the action proposed to be taken on the points indicated above.

Sd/-
Secretary to Government, P.W.D.

ENCLOSURE :

An Extract from " The Hindu " dated 17th October 1967 :

P. M. RULES OUT ARBITRATION ON KRISHNA WATERS, ANDHRA STAND ON NAGARJUNA BACKED.

Enquiries reveal that the Prime Minister, Mrs. Indira Gandhi, has categorically ruled out arbitration in regard to the dispute among Andhra, Mysore and Maharashtra over the sharing of the Krishna waters. During the recent Chief Ministers' conference at Delhi, Mrs. Gandhi made it clear to them that as long as the Andhra Government utilised the share allocated to it under the Hafiz Mohamed Ibrahim award and no more, the other two Governments should not have any cause for complaint.

As regard the view expressed by the Chairman of the Central Water and Power Commission that the installation of crest gates was part of the second stage of the construction of the Nagarjunasagar dam and, therefore, should not be taken up now, it is stated the Prime Minister actually overruled this objection and has asked the Andhra Government to go ahead with their installation.

Mysore and Maharashtra, it may be remembered, opposed the installation of the crest gates at Nagarjunasagar dam by Andhra on the ground that by doing so it would impound more water than was its legitimate due.

Actually, the Chief Minister of Andhra protested to the Prime Minister that this particular subject was not part of the Inter-State dispute. It was a technical matter to be decided by the State Government itself.

Union Irrigation Ministry sources too confirmed this view and they have revealed that at the last conference of the Chief Ministers, the Prime Minister was not prepared to take this objection seriously.

When told by the Prime Minister that it was not prudent to stop any scheme within the framework of the Ibrahim award, the Chief Ministers of Maharashtra and Mysore raised the larger issue that the entire basis of allocation of the river waters should be changed as the previous arrangement was made on wrong data.

Mrs. Indira Gandhi was, however, informed by technical experts that the exact amount of water in the Krishna river, which could be allocated to the three States, could not be determined overnight. It would take at least three to five years to do so.

It was for this reason the Prime Minister appealed to the Chief Ministers not to raise this subject particularly when a number of schemes were taken up years ago on the basis of Ibrahim award.

The controversy over the Krishna river waters is a long standing one but matters came to a head sometime ago, when the Andhra Government indicated that it planned to install 26 crest gates over the Nagarjunasagar dam spillway. According to the Andhra Government, without these crest gates, the capacity of the reservoir would be inadequate to meet the requirements of the area to be irrigated by it.

Maharashtra and Mysore have objected to this on the ground that installation of the gates is actually part of the second phase of the scheme and would therefore require prior approval by the Central Government, as provided for in the 1963 agreement. Another objection of these two States is that with the crest gates Andhra would utilise by this project, more than 264 T.M.C. ft. allowed under the agreement.

The 1963 allotment of Krishna waters was made by the then Union Minister of Irrigation Hafiz Mohammed Ibrahim. Based on the Gulhati Committee's report, which put the dependable flow in the Krishna at 1,800 T.M.C.ft., Andhra was allotted 800 T.M.Cft., Mysore 600 and Maharashtra 400.

DOCUMENT MYK No. 70.

CMI-1218/67. 10th November 1967.

My dear Indiraji,

Kindly refer to my letter No. CMI. 1173/67, dated 24th October, 1967.

2. It has been reported by the Chief Engineer of this State after his recent visit to Poona Research Station that the model studies that are in progress with the Central Research Station in Khadakavasala (Poona) will take at least six months more inasmuch as two more models will have to be constructed for studying the condition of flow for depths which are not realised in the present model as constructed. Further, it is learnt that the embedded parts like the Channel, Anchor plates and Gears required for the Crest-Gates of Nagarjunasagar Dam have already been embedded in 13 Piers out of 27 Piers under construction. When the rest of the Piers are completed, the embedding of parts which are already available at the site will also be taken up by Andhra Pradesh Government. It is clear therefore that the Government of Andhra Pradesh is proceeding with the erection of Crest-Gates without any regard to the objections raised by the Government of Maharashtra and the Government of Mysore.

3. Since the studies being conducted at the Research Station in Poona will take some more time and since Andhra Pradesh is already going ahead with the preliminaries required for the erection of the Crest-Gates, the question of sharing of waters cannot be postponed any further and will have to be settled immediately. I request that this matter may therefore be referred to a Tribunal as already requested by the State Government without any more delay.

With kind regards,

Yours sincerely,
Sd./-
(S. NIJALINGAPPA.)

Smt. Indira Gandhi,
Prime Minister of India,
NEW DELHI.

DOCUMENT MYK No. 71

No. 52/1/66-DW. I

GOVERNMENT OF INDIA

MINISTRY OF IRRIGATION AND POWER

New Delhi, dated 10th November 1967.

19, *Karthika*, 1889 (S)

To

The Secretary to the Government of Mysore,
Public Works Department,
Bangalore.

Sir,

Subject. - Installation of Crest Gates at Nagarjunasagar Dam.

I am directed to refer to your letter No. PWD 1 BRA 59, dated the 25th October, 1967, on the subject noted above, and to state that the report appearing in the "Hindu", dated the 17th October, 1967, (Extracts received from you) to the effect that the Government of India have asked the Government of Andhra Pradesh, to go ahead with the installation of Crest Gates on Nagarjunasagar Dam, is not correct. The matter is still under the consideration of the Central Government.

Yours faithfully,
Sd.
(AMRIT RAI),
Under Secretary to the Government of India.

DOCUMENT MYK No. 72

Express Delivery

C.M. I 1299/67.

Dated 24th November 1967.

Subject.—Allocation of Krishna-Godavari waters.

My dear Indiraji,

Kindly refer to my letter No. CM. I. 1218/67, dated 10th November 1967.

It has been reported in the Press that while answering certain questions raised in the Parliament, the Union Minister for Irrigation and Power has stated that though the Government of Mysore had given October 31, as the dead-line for referring the question for arbitration they have not pressed their request in view of the discussions going on. The above statement of the Minister for Irrigation and Power, Government of India, is not correct. In my letter dated 10th November 1967, I have made it clear that finding a solution to the question of sharing of waters cannot be postponed any further and will have to be settled immediately. I have also urged that the matter may be referred therefore immediately to a tribunal as already requested by the State Government without any more delay. I am of the firm opinion that the dispute regarding the sharing of Krishna and Godavari waters can be solved satisfactorily and quickly only by a reference to the Tribunal under the Inter-State Water Disputes Act. We have spent sufficiently long time in discussions, talks and conferences without the solution being anywhere in the sight. The people of the State to whom guarantee of their just and rightful share of waters in these rivers is very vital are very much agitated over these long drawn out discussion. Any failure on the part of the State Government and Central Government to solve the issue early may lead to unavoidable agitations.

I am happy to note that in your address to the 40th Annual Session of the Central Board of Irrigation and Power, you have rightly emphasised the importance of rational and scientific approach for settling Inter-State River Water Disputes.

My Government's approach to the problem all along was only on these lines and the solution was being insisted to be based on safeguarding the legitimate interests of every region without either emotional or political bias. Negotiation would have been successful if it had been free from this approach.

A tribunal would be free from these prejudices and emotional pressures, etc., and solutions will be available quickly and impartially from it if matter is referred to quickly.

In the circumstances, I request you again to see that the matter is immediately referred to a Tribunal as already requested in this Government letter No. PWD 24 BRA 59, dated 10th July 1967 and without further delay.

Kindest regards,

Yours sincerely,
Sd.
(S. NIJALINGAPPA)

Smt. Indira Gandhi,
Prime Minister of India,
New Delhi.

DOCUMENT MYK No. 73

CM. I. 572/68.
13th February 1968.

My dear Indiraji,

Kindly refer to my letter No. CM. J-1299/67, dated November 23, 1967 in the matter of the utilisation of Krishna water. I regret very much to say that so far no reply has been received and the letter also has not been acknowledged.

2. The tentative arrangement as to allocation of water has not been finalised and the question of allocation to three States—Maharashtra, Mysore and Andhra of the Krishna-Godavari waters is yet to be settled. Disputes have arisen in respect of that matter and these disputes have not yet been settled.

3. During our recent informal meeting at Delhi when the Chief Ministers of Andhra Pradesh and Maharashtra also were present, I tried to impress upon you that the Andhra Pradesh Government is rapidly going ahead with its Nagarjunasagar Project and trying to complete the dam installing crest gates to the detriment of the interests of the State of Mysore. I may mention at this stage that all along it was being said that the installation of crest gates was part of the second stage of the dam to be undertaken only after the question about utilisation of Krishna water was finally settled, but contrary to this the work is in progress. I had also made it very clear to you that permitting the installation of crest gates without first settling the disputes that have arisen between the three States with regard to allocation of waters of Krishna-Godavari would very seriously and irreparably damage the interests of the State of Mysore and that it was absolutely necessary that the matter should be referred to a Tribunal at once and to direct the Andhra Pradesh Government to desist from installing crest gates. No action has been taken so far in

this direction. You will kindly appreciate that while all along the Government of Mysore has been trying to have a just solution by methods known to law, the matter has been allowed to drift without a solution. The hope expressed by the Government of India in its letter dated March 14, 1962 that negotiations would lead to a solution more expeditiously than reference to a Tribunal has not been realised. I cannot help expressing my feelings that if only the Government of India had referred the matter to a Tribunal in 1962 itself, the matter would have been settled long back.

4. I must convey to you that the people of the State are very much agitated over the question of utilisation of Krishna water. Their feelings are running high and an impression in their minds is gaining ground that the question is not being impartially handled by the Government of India. Any further delay in settling the question will only lead to a worsening of the situation. To avert the same it is essential that immediate action has to be taken.

5. At the cost of repetition I may state that unless the dispute is referred to a Tribunal with a direction to the Government of Andhra Pradesh not to proceed with the installation of crest gates, it is likely to lead to serious repercussions. I, therefore, very earnestly appeal to you and hope that you will intervene and take prompt action in referring the question immediately to a Tribunal.

With kind regards,

Yours sincerely,

Sd/

(S. Nijalingappa.)

Smt. Indira Gandhi,
Prime Minister of India,
NEW DELHI.

PART VIII

Correspondence between Government of Mysore and Government of India relating to the Appointment of a Tribunal, 1968.

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DOCUMENT MYK No. 74

Copy of Letter No. 389-PMO/68, dated 20th April 1968, from the Prime Minister of India addressed to the Chief Minister of Mysore, Bangalore.

Subject.—Krishna-Godavari Dispute.

At the meeting held on October 6, 1967, we decided to hold further discussions after the results of the model tests at Poona were available. These results are now available. Normally, I would have convened the next meeting of the concerned Chief Ministers but some developments have taken place and have to be noted.

In your letter No. CM-I-1219/67, dated 10th November 1967 and also in letter No. CM-I-1299/67, dated November 23, 1967 you have pressed for the reference of this dispute to a Tribunal without any further delay. Also, in his address to the State Legislature on the 19th February, 1968 the Governor of Mysore stated :

"Government has, therefore, urged the Prime Minister that the matter should be immediately referred to a Tribunal for adjudication of the dispute without losing any more time on discussions. Government is also considering such other steps including legal remedies that are necessary to safeguard the interests of the State."

The Chief Minister of Maharashtra has asked for an early settlement. The Maharashtra Government wrote on 20th February, 1968 that :

"The Maharashtra Government, therefore consider that unless a definite settlement is reached and the Andhra Pradesh Government is directed not to go ahead with the installation of gates within the next two months this Government will be compelled to cease to participate in any further discussions and will be forced to take legal steps to secure the appointment of a Tribunal as per Statute."

The Governor of Maharashtra also referred to this in his address to the State Legislature on 7th February 1968.

Recently there was a reference to this question in Parliament.

This question has been pending for long. The larger national interests demand that it should be settled without further delay. From the developments to which I have referred above, it appears that action for the appointment of a tribunal under the 'Inter-State Water Disputes Act, 1956' may be unavoidable, unless you feel that a further meeting of the Chief Ministers could be expected to yield results. Please let me have your advice in the matter.

DOCUMENT MYK. No. 75

S. Nijalingappa.
Chief Minister.

CMBB/503/68
Bangalore.
May 20, 1968.

Kindly refer to your Secret Letter No. 389-PMO/68, dated April 20, 1968, regarding Krishna-Godavari Dispute.

Yesterday morning I met Shri Brahmananda Reddy, Chief Minister of Andhra Pradesh and Shri Naik, Chief Minister of Maharashtra and discussed the question of allocation of waters and related matters with them re : the respective claims of Andhra, Maharashtra and Mysore to the waters of Krishna. After discussion we came to the conclusion that the only course open to all of us is that the matter may be referred to a Tribunal for adjudication. I do not find any possibility of an agreement amongst us. The only course left open according to law is adjudication without any loss of time. As sufficient time is lost, delay may kindly be avoided.

Yours sincerely,
Sd.
(S. Nijalingappa.)

Smt. Indira Gandhi,
Prime Minister of India,
New Delhi.

DOCUMENT MYK. No. 76

D.O. No. PWD 1 BRA 59 (Part V).

Date 1*st June* 1968.

My dear Indiraji,

Kindly refer to the letter No. CMBB/503/68, dated 20th May 1968, from Shri S. Nijalingappa.

As mentioned by Shri Nijalingappaji the only course left open is to refer the dispute regarding the allocations of Krishna waters to arbitration for adjudication, since all the three States, *viz.*, Andhra Pradesh, Maharashtra and Mysore have agreed to this course of action.

I understand that the Andhra Pradesh Government is going ahead with the work of installation of the crest-gates in spite of the protests made by this State. Installation of crest-gates will mean storage and utilisation of additional waters by the Andhra Pradesh to the detriment of Mysore. I am therefore to request that the question of allocations of Krishna waters be referred to the Tribunal without any loss of time.

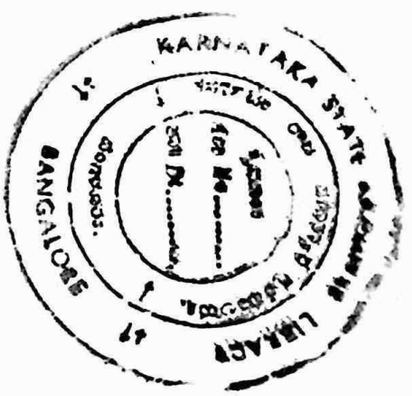
Yours

Sd./

(V. Patil,)

Chief Minister.

Shrimati Indira Gandhi,
Prime Minister of India, New Delhi.



DOCUMENT MYK. No. 77

PRIME MINISTER'S HOUSE

New Delhi.

4th June 1968

Dear Shri Patil,

Thank you for your letter of 1st June. I have requested my colleague, the Minister of Irrigation and Power, to take early steps to refer the dispute regarding the allocation of Krishna waters to arbitration.

With warm regards and good wishes,

Yours sincerely,

Sd.

(Indira Gandhi.)

Shri Veerendra Patil,
Chief Minister of Mysore,
" Vidhana Soudha ", Bangalore.

DOCUMENT MYK. No. 78

Express Delivery *Most Immediate (Confidential)*

No. MIP 1648—68.

GOVERNMENT OF INDIA

Minister for Irrigation and Power,

New Delhi, 23rd June 1968.

My dear Veerendra Patil,

As you are aware, steps are now being taken to constitute tribunals for solving the Krishna-Godavari Water Disputes. A formal reference from the Government of Mysore was received in January, 1962. I would appreciate if you will let us know whether the Government of Mysore would like to modify, supplement or replace these petitions, with a view to setting out the latest facts regarding this dispute. If the State Government wishes to make any further reference in this behalf, I shall be grateful if you will kindly arrange to send us your modified, supplemental or substitute petition so as to reach my Ministry on or before the 10th July, 1968.

I shall be grateful for a line in reply.

With best regards,

Yours sincerely,
Sd.
(K. L. Rao.)

Shri Veerendra Patil,
Chief Minister of Mysore, Bangalore.

DOCUMENT MYK. No. 79

GOVERNMENT OF MYSORE

No. PWD 1 BRA 59 (Part V)

Mysore Government Secretariat,
"Vidhana Soudha"
Bangalore, dated 8th July 1968.

From

The Secretary to the Government of Mysore, Public Works and Electricity Department.

To

The Secretary to Government of India, Ministry of Irrigation and Power, New Delhi.

Sir,

Subject :—Allocation of Krishna-Godavari Waters.

Reference :—Confidential letter No. MIP. 1648/68, dated 23rd June 1968, from the Union Minister for Irrigation and Power to the Chief Minister of Mysore.

In reply to the aforesaid communication, I am directed by the Government of Mysore to state as follows :—

1. What is referred to in the aforesaid communication as a formal reference from the Government of Mysore is in fact and in reality a regular complaint made by the State of Mysore under Section 3 of the Inter-State Water Dispute Act, 1956 requesting the Government of India to refer the dispute to a Tribunal constituted under the Act. The Government of Mysore has stated its case in its complaint, dated 29th January 1962. All that is necessary for the Government of Mysore now to do is to narrate the events that have taken place subsequent to the presentation of its complaint on 29th January 1962 in order to bring all the facts up-to-date and to amplify the stand of the State of Mysore.

2. In reply to the complaint made by the State of Mysore on 29th January 1962, the Government of India by their letter No. II—32/62, dated 14th March 1962 stated that they have noted the request of the State Government for the constitution of a Water Dispute Tribunal and that before such a Tribunal could be constituted it is necessary for the Government of India to form an opinion that the water dispute cannot be settled by negotiation and that they have not yet formed such an opinion. It was further stated that the Government of India was hopeful that the settlement satisfactory to all the parties would be reached by negotiation much more expeditiously than through a reference to Arbitration under the Inter-State Water Disputes Act. They also further stated that the report of the Gulhati Commission appointed for the purpose of collecting the relevant technical data in this behalf would be available very shortly and that further action would be taken immediately on receipt of the report.

3. The Technical Commission, *viz.*, Gulhati Commission—appointed by the Union Government after going through all aspect made a report in 8/1962. In substance it must be stated that this report confirmed the facts and figures on which the State of Mysore claimed its fair share of Krishna waters to the extent of 47·5 per cent.

4. On 23rd March 1963 a statement was made by the Union Minister for Irrigation and Power in the Lok Sabha announcing the utilisations of the Krishna river water during 3rd, 4th and 5th Five-Year Plan as follows:—

1.	Maharashtra	...	400 T.M.Cft.
2.	Mysore	....	600 T.M.Cft.
3.	Andhra Pradesh	....	800 T.M.Cft.

The State of Mysore by its letter dated 14th June 1963 and 16th April 1964 pointed out to the Union Government that even as an interim measure till 1976 the 600 T.M.Cft. of Krishna waters was highly inadequate to meet the

needs of the scarcity affected areas of the Mysore State situated within the Krishna basin, besides being far below its legitimate share. The allocations of waters suggested by the Union Government was in the circumstances not acceptable to the State of Mysore. The Union Minister for Irrigation and Power also declared in the Lok Sabha, on the basis of the opinion of the Attorney General of India that the 1951 agreement was legally wholly ineffective and unenforceable.

5. In pursuance of the statement made by the Union Minister for Irrigation and Power, dated 23rd March 1963 the Government of India formed two Investigation Circles.

(1) to survey and investigate Krishna-Godavari link,

(2) to gauge the two river basins as recommended by the Gulhati Commission.

In order to associate States of Andhra Pradesh, Madhya Pradesh, Orissa and Mysore with the work of these Circles a Committee consisting of Chief Engineers of Mysore, Maharashtra, Andhra Pradesh, Madhya Pradesh and Orissa with the Chairman of the Central Water and Power Commission as the Chairman of the Committee was constituted by the Government of India in 10/1963. The function of the Committee was to review the progress of the two investigation Circles and to give suitable instruction for collection of necessary data.

6. Having not agreed to the proposal for interim utilisation of water suggested on 23rd March 1963 by the Union Minister for Irrigation and Power the State of Mysore insisted on the settlement of the entire dispute in regard to the allocation of Krishna Godavari waters by referring the dispute to the Tribunal. Subsequently. conferences were held between the Union Minister for Irrigation and Power and the Chief Ministers of Andhra, Maharashtra

and Mysore on various occasions in an informal way. The last of such meetings was held in June 1966 in Bangalore when Hon'ble Sri F. A. Ahmed the then Minister for Irrigation and Power held discussion with the Ministers and Officers of the Government of Mysore. During these meetings and discussions the Government of India proposed that they would see that a settlement was reached at a very early date. No progress was made towards the settlement of the dispute. The stand taken by the State of Andhra Pradesh has all along been to stick to the allocation suggested by the Planning Commission in the year 1951 and not agree even to stay the construction of the crest gates for Nagarjunasagar during the pendency of the dispute. The stand taken at all these conferences by the State of Mysore was that the allocation of waters must be made on just and equitable principles, ignoring the allocations suggested by the Planning Commission in the year 1951 as the same were not legal and binding besides being unjust and inequitable. The stand taken by the State of Andhra Pradesh was thus diametrically opposed to that taken by the State of Mysore.

7. One of the items of dispute which the State of Mysore had sought for reference to the Tribunal was regarding the staying of the implementation of the gigantic projects undertaken by the State of Andhra Pradesh on the ground that they were disproportionate to its legitimate share. In view of the statement made by the Union Minister in Lok Sabha on 23rd March 1963 to the effect that the Nagarjunasagar Stage-II can be cleared only after investigation of diversion of the supply from Godavari River was completed and the quantum and levels of such diversions were known the State of Mysore believed that the Andhra Pradesh would not proceed with the Stage-II of Nagarjunasagar Project which included erection of crest gates. But in April 1967, the Chief Minister of Andhra Pradesh made a statement in the State Assembly that the Stage-II of Nagarjunasagar would be taken up and that the Government of India would be requested for clearance of the same.

Karnataka State Archives,
(Departmental Library)
Accession No.... 1285
Date.....

9. In view of the stand taken by the Government of Andhra Pradesh to go ahead with the Second Stage of the Nagarjunasagar Project and in view of the fact that the Central Government had not taken necessary action in the matter and it had allowed the matter to drift, Government of Mysore addressed a letter to the Government of India on 28th July 1967 requesting the Central Government either to settle the dispute by negotiation or to refer it to a Tribunal within a period of three months from the date of the letter. It was also mentioned in that letter that if no action was taken as requested within a period of three months the State Government would be constrained to take appropriate action to safeguard the interest of the State and its people. At this stage the Prime Minister intervened and proposed a meeting of the Chief Ministers of the three States of Mysore, Andhra Pradesh and Maharashtra on 18th August 1967 at New Delhi to discuss this matter. A detailed note explaining the stand taken by the Government of Mysore was submitted to the Prime Minister in advance. As no agreed solution was arrived at this meeting a further meeting of the Chief Ministers of Andhra Pradesh, Mysore and Maharashtra and the Union Minister for Irrigation and Power with the Prime Minister was held on 6th October 1967. The Chairman of the Central Water and Power Commission also participated in these meetings and he stated at the meeting without any ambiguity that the erection of the crest gates was not a part of the Nagarjunasagar Stage-I. The Meeting however ended without arriving at any solution. On 24th October 1967 the Chief Minister of Mysore wrote to the Prime Minister of India requesting the Government of India to issue immediate instructions prohibiting further action on the installation of the crest gates. It was further stated in that letter that it was not possible to issue such instructions, further discussion on the question of sharing of waters would be of no avail and that the matter would have to be referred to a Tribunal as requested by the State Government earlier. To this request made by the Chief Minister there was no response from the Union

Government. The Chief Minister of State of Mysore wrote one more letter on 10th November 1967 to the Prime Minister requesting that the matter may be referred to a Tribunal as already requested by the State Government without any further delay. To this request also there was no response. The Chief Minister of Mysore again wrote one more letter on 23rd November 1967 to say that the matter be referred to a Tribunal without any further delay. To this also there was no response. After waiting for more than reasonable time the Chief Minister of Mysore wrote to the Prime Minister once again on 13th February 1968 and requested the Prime Minister to take prompt action by referring the question immediately to a Tribunal.

10. The Prime Minister in her letter, dated 28th April 1968 agreed that in the larger national interest this question should be settled without further delay and sought the advice of the Chief Ministers as to whether a further meeting of the Chief Ministers could be expected to yield any result. After discussing the matter with the Chief Ministers of Maharashtra and Andhra Pradesh the Chief Minister of Mysore informed the Prime Minister on 20th May 1968 that the only course open in the matter was to refer the dispute to a Tribunal. The Prime Minister in her reply dated 4th June 1968 informed the Chief Minister that early steps were being taken to refer the dispute of allocation of Krishna Waters to arbitration.

11. The Government of Mysore by its letter, dated 11th April 1968 requested the Government of Andhra Pradesh not to proceed with the erection of crest gates on the Nagarjunasagar Dam pending final adjudication of the dispute raised by the State of Mysore by its complaint, dated 29th January 1962. The Government of Mysore also made it clear that any unilateral action taken by the Government of Andhra Pradesh during the pendency of the dispute could not adverselyaffect the rights and interest of the State of Mysore and its people. The Andhra Pradesh Government in its reply dated 25th May 1968

maintained that the crest gates constituted merely a design feature of the dam calculated to secure utilisation of the approved allocation of Krishna Waters and that the second stage of the project only related to the extension of the canal systems. The reference to the approved allocation of Krishna Waters is to the 1951 agreement. The Government of Mysore has by its reply, dated 21st June 1968 made it clear that the 1951 Agreement was inoperative, unenforceable, void and not binding on the State of Mysore and that no reliance on the same could be placed. The Government of Mysore reiterated its request for taking immediate action not to proceed with the erection of the crest gates particularly in the context of recent development in the matter of referring the dispute to the Tribunal.

12. It is thereafter that the Government of Mysore received the letter under reply from the Government of India dated 23rd June 1968.

13. Specific matters referred to in the complaint by the State of Mysore on 29th January 1962 remain substantially the same. It is however felt necessary to make certain amplification in regard to the matters in dispute in the interest of justice.

14. While making the allocation of waters of Krishna and Godavari rivers on rational, just and equitable principles the Tribunal should also indicate the quantum of waters that each State is entitled to receive at its State border from the main rivers and its tributaries respectively so that the recipient States can fully and effectivly utilise the share of waters allocated to it. Incidentally it may be stated that the State of Mysore would be in a position to irrigate not less than 20 lakh acres under the Upper Krishna Project.

15. The Tribunal should also be empowered to set up a suitable machinery to ensure smooth and proper implementation of the Award.

16. It is hoped that the Tribunal as promised would be constituted without any further delay.

Yours faithfully,

Sd.

(G. V. Venkataramu,)
Joint Secretary to Government,
Public Works and Electricity Department.

DOCUMENT MYK. No. 80.

MYSORE GOVERNMENT SECRETARIAT,
VIDHANA SOUDHA BANGALORE.

Dated 20th July 1968.

Shri Veerendra Patil,
Chief Minister of Mysore.
D. O. No. CMI 2353/68

My Dear Dr. Raogaru,

Kindly refer to your D. O. letter No. MIP 1648-68, dated 23rd June 1968, regarding the constitution of the Tribunal. As desired therein, your Ministry has been addressed in No. PWD 1 BRA 59 (Part-V), dated 8th July 1968 amplifying the points that were raised in January 1962. I hope that this will receive your consideration while constituting the Tribunal and about the specific points of reference to be considered by it.

2. However, in your letter, it has been stated that steps are now being taken to constitute "Tribunals" for solving the Krishna-Godavari Water Disputes. I have to bring to your notice that all along, the Krishna and Godavari Dispute has been considered as 'one' in spite of the fact that they form two Basins. This common consideration of the two Basins under the Dispute is on account of the fact that diversion of Godavari waters was considered essential to supplement needs of Andhra Pradesh in the Lower Krishna Basin. The possibility of the same has been accepted by the Gulhati Commission in 1963. The Commission has made specific recommendations on this issue. Later the Technical Committee constituted under your Ministry in the Central Water and Power Commission has been entrusted with the specific task of determining the quantum of diversion, the sites available on Godavari river for such diversion and their feasibility.

3. Under the above circumstances, I feel that if two Tribunals are constituted for these Basins independently without this common matter being discussed, it may leave the question open again and leave the problems unresolved for a further Tribunal. In the interest of equity, rational and speedy allocation of waters among the concerned States in Krishna and Godavari Basins, I request that only one common Tribunal is created for Krishna and Godavari Basins, so that this specific matter apart from the rational distribution of waters in the two rivers of Krishna and Godavari is also considered by the Tribunal and a final decision obtained thereon without any doubt or confusion. 10

4. I shall be grateful for a line in reply as to the action proposed to be taken thereon.

With best regards,

Yours sincerely,
Sd./-
(VEERENDRA PATIL)

Dr. K. L. RAO,
Minister of Irrigation and Power,
Government of India, New Delhi.

DOCUMENT MYK No. 81

Veerendra Patil,
Chief Minister of Mysore.

D. O. No. PWD 1 BRA 59 25th July 1968

My Dear Smt. Gandhiji,

Kindly refer to your letter, dated 14th June 1968 intimating that the dispute regarding the allocation of Krishna waters is being referred to Arbitration. Subsequently, Dr. K. L. Rao informed me *vide* his letter No. MIP. 1648-68, dated 23rd June 1968 that steps were being taken to constitute " Tribunals for solving the Krishna-Godavari water disputes". As desired by him, a detailed note amplifying the points already raised by this Government in its application of June 1962 has been sent.

It is seen from the letter of Dr. K. L. Rao that the idea is to constitute " Tribunals " for solving the Krishna-Godavari Water disputes. Till now the Krishna and Godavari water dispute has been considered as "one " in spite of the fact that they form two basins. This common consideration of the two basins under the dispute is on account of the fact that the diversion of Godavari waters was considered essential to supplement the needs of Andhra Pradesh in the Lower Krishna Basin. This possibility has been accepted by the Gulhati Commission in 1963. This Commission has made specific recommendation on this issue. The Central Water and Power Commission has also constituted a Technical Committee with the specific task of determining the quantum of diversion, the sites available on Godavari river for such diversion and their feasibility.

Under these circumstances, if two Tribunals are constituted for these Basins independently without this common matter being dealt with, it may leave the question open again and leave the problems unresolved for a further Tribunal. I request, therefore that only one common Tribunal is created for Krishna and Godavari Basins so that this specific matter along with the rational distribution of waters in two rivers of Krishna and Godavari is considered by one Tribunal and a final decision obtained thereon leaving no room for any doubt and confusion.

With best regards,

Yours sincerely,

Sd.

(Veerendra Patil)

Srimathi Indira Gandhi,
Prime Minister,
India,
New Delhi.

Copy for kind information to the Special Commissioner, Government of Mysore, "Mysore House", Chanakyapuri, New Delhi.

DOCUMENT MYK. No. 82

No. 266-PMH/68

Prime Minister's House,
New Delhi,
August 27, 1968

Dear Shri Patil,

You wrote to me on July 25 on the subject of setting up of tribunals for resolving the Krishna-Godavari Waters Disputes. The matter is being examined by the Ministry of Irrigation and Power in consultation with the Ministry of Law. I have no doubt that the views you have expressed will be given full consideration in reaching a final decision.

With regards,

Yours sincerely,
Sd./—
(Indira Gandhi)

Shri Veerendra Patil,
Chief Minister, Mysore,
Vidhana Soudha,
Bangalore-1.

DOCUMENT MYK. No. 83

CM. I. 3607/68.

8th November 1968.

Mr. Dear Smt. Indiraji,

Kindly refer to your letter No. 266-PMH/68, dated 27th August 1968. It was stated therein that the matter regarding the setting up of a single Tribunal for resolving the Krishna-Godavari Waters dispute was being examined by the Ministry of Irrigation and Power in consultation with the Ministry of Law. As you are aware, the question of sharing of Krishna-Godavari Waters and other problems arising out of the non-finalisation of that issue have been pending for a long time. Even though it was stated in your letter, dated 4th June 1968 that early steps are being taken to refer the matter relating to the allocation of Krishna-Godavari Waters to Arbitration, so far no Tribunal has been set up. Due to this delay in setting up of the Tribunal, more new schemes are being taken up by the Maharashtra State and the work of erection of Crest-Gates to Nagarjunasagar is also in active progress. The execution of project in Maharashtra and Andhra Pradesh in excess of their legitimate share of waters in the Krishna basin cannot be agreed to by this Government and it is, therefore, necessary that immediate steps are taken to constitute only one single Tribunal for resolving the Krishna-Godavari Waters dispute.

With warm regards,

Yours sincerely,

Sd./

(V. Patil).

Smt. Indira Gandhi,
Prime Minister of India,
New Delhi.

PART IX

Correspondence between Government of Mysore and the Governments of India and Andhra Pradesh relating to Nagarjunasagar and Srisailam and other Projects. **1959 to 1967.**

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DOCUMENT MYK No. 84

Letter No. PWD 1580 (B) 59, dated 7th August 1959, from the Secretary to the Government of Mysore, Public Works Department, Bangalore, addressed to the Member (Planning and Investigation), Central Water and Power Commission (Water Wing), New Delhi.

Sub: Proposed construction of a reservoir across Krishna river at Srisailam by the Andhra Pradesh Government.

It is seen from newspaper reports that the Andhra Pradesh Government are contemplating the construction of a large reservoir across the river Krishna at Srisailam for the development of power as well as irrigation. It is not known if they are already in consultation with the Central Water and Power Commission in this behalf and whether, after completion of the investigations, technical clearance has been sought for the scheme. It is also understood that there is a proposal to take up what is called the second stage of Nagarjunasagar Project with a view to impounding and utilising a much larger quantity than has been allocated for the first stage of the project.

2. As the Commission would be aware, the question of reallocation of Krishna waters among the States of Bombay, Mysore and Andhra Pradesh as a result of States Reorganisation is under consideration, and Mysore has already furnished its comments on the Note drawn up by the Central Water and Power Commission in this behalf. The reallocation has yet to be finalised, presumably after a Conference of the representatives of the Government of India and of the States concerned is held some time in the near future. If the information referred to at para 1 is correct, this Government are of the view that consideration cannot be given to new projects like Srisailam and second stage of Nagarjunasagar until the question of reallocation of waters is settled, especially as there is reason to believe that Andhra Pradesh might, in considering these projects, have assumed much larger qnantities of water than might fall to their share as a result of reallocation.

3. I am to suggest in the circumstances that the consideration of any proposals made by Andhra Pradesh with regard to these and other similar projects be deferred until the question of reallocation of waters is finally dealt with. In the meantime, details pertaining to these two projects may, if there be no objection, be kindly obtained from Andhra Pradesh Government and furnished to this Government.

Copy to :

1. The Adviser (Irrigation), Planning Commission, Government of India, New Delhi.
2. The Secretary, Ministry of Irrigation and Power, New Delhi.

DOCUMENT MYK No. 85

Letter No. 1 (18) ADR-3A/59-TE, dated 28th August, 1959, from the Member (P & I) for Chairman, Central Water and Power Commission, Government of India (Water Wing), addressed to the Secretary to Government of Mysore, Public Works Department, Bangalore.

Sub: Proposed construction of a reservoir across Krishna river at Srisailam by the Andhra Pradesh Government.

Your letter No. PWD 1580 (B) 59, dated 7th August 1959. It is understood that Andhra Pradesh Government propose to suggest the construction of a reservoir across the river Krishna at Srisailam. The Project report for this scheme has however not been received so far.

The second stage of Nagarjunasagar project, which would utilise larger quantities of water than those provided on the present sanctioned project, had been visualised by Andhra long ago. No formal proposal to execute the second stage of Nagarjunasagar Project has been received so far.

The points contained in the second paragraph of your letter under reference will undoubtedly be taken into consideration before these projects are accepted by the Government of India.

DOCUMENT MYK No. 86

Letter No. PWD 24 BRA 59, dated 17th May 1960, from the Secretary to Government, Public Works Department, Vidhana Soudha, Bangalore, addressed to the Member (Planning and Investigation) Central Water and Power Commission, Government of India (Water Wing), New Delhi.

Sub : Proposed construction of a reservoir across Krishna River at Srisailam by the Andhra Pradesh Government.

Ref : (1) This Governmet letter No. PWD 1580 (B)/59, dated 7th August 1959.

(2) Your letter No. 1 (18) ADR-3A/59-TE, dated 28th August 1 959

Ref : (1) The Government letter No. PWD 1580 (B)/49 dated 7th August 1959.

(2) Your letter No. 1 (18) ADR-3A/59-TE, dated 28th August 1959.

I am directed to refer to the communication cited above and to State that it is seen from the News Papers (Sunday Standard dated 3rd April 1960) the Union Minister for Irrigation and Power has made a statement that the Central Water and Power Commission is examining the feasibility of including in the Third Plan the Srisailam Project under which a power plant with 3,30,000 kilowatts at Nagarjunasagar are to be installed. In this connection, I am to invite a reference to this Government letter dated 7th August 1959 cited above and to point out that new projects like Srisailam and Second stage of Nagarjunasagar cannot be considered until the question of reallocation of Krishna Waters is settled, as Andhra Pradesh in considering these projects might have assumed in all probability much larger quantities of water than might fall to their share as a result or reallocation.

I am, therefore once again to request you to defer the consideration of the above proposals of Andhra Pradesh till the question of allocation of Krishna Waters is settled at the Inter-State Conference which is expected to come off in July 1960.

Copy to :

The Chairman, Central Water & Power Commission.
The Adviser (Irrigation). Planning Commission.
The Secretary, Ministry of Irrigation and Power.
The Secretary, P.W.D. Government of Andhra Pradesh,

DOCUMENT MYK.No. 87

Letter No. PWD 24 BRA 59, dated 16/17th June 1960, from the Secretary to the Government of Mysore, Public Works and Electricity Department Bangalore, addressed to the Secretary to the Government of India, Ministry of Irrigation and Power, New Delhi.

Sub : Proposals for adjustments in the 1951 Agreement regarding utilisation of Krishna and Godavari Waters.

I am directed to invite your attention to this Government letter No. PWD 24 BRA 59 dated 17th May 1960 wherein the objection of this Government to the sanctioning of the Srisailam and Second Stage of Nagarjunasagar Projects pending final allocations of Krishna Waters have been recorded. It has now been stated in your letter No. DW. II -1 (25)/58 dated 4th June 1960 that until the allocations of Krishna and Godavari Waters among the States is finalised, new projects for the Second and Third Five-Year Plan will be examined by the Government of India on the basis of the tentative allocations suggested by the Central Water and Power Commission. I am directed to draw your attention to the fact that this Government has got serious objections towards the tentative allocations itself and therefore if the Government of India were to go ahead with the consideration of the schemes put forward by the Andhra Government even before the finalisation of allocations of water, it would, in effect, amount to the rejection of this Government's claims which have been made before and which are being further urged.

Under the circumstances therefore, I am directed to request you to move the Central Government not to take up the consideration of any of these projects or the Pochampad Project until the final allocation of Krishna and Godavari Waters has been made. In this connection, an Inter State Conference is expected to be held in the course of a month and it is presumed that some final decision will be arrived at in this meeting. It may once again be stated that any consideration of the Srisailam, 2nd Stage of Nagarjunasagar, and Pochampad Projects, inspite of the protests by this Government would mean an *ex-parte* decision prejudicial to the interests of this State, and this State would not be bound to recognise the riparian rights of Andhra Pradesh entered into as a result of such agreement between the Government of India and Andhra Pradesh Government.

DOCUMENT MYK. No. 88

Confidential.

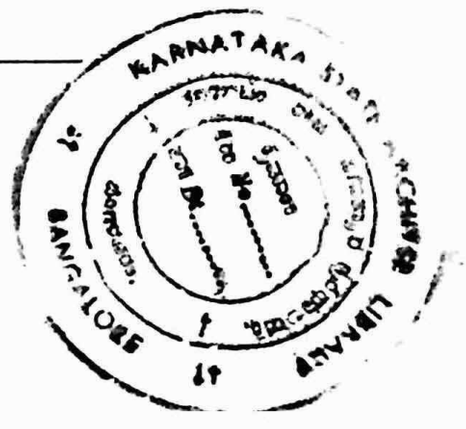
Letter No. M.P.W. 927–28/60, dated 5/6th July 1960, from the Minister for Public Works Department, Government of Mysore, Bangalore, addressed to the Minister for Irrigation, Government of India, New Delhi.

The question of allocating the waters of Krishna and Godavari among the various States concerned is engaging the attention of Government of India, and an Inter-State Conference is scheduled to be held by the close of next month to discuss the subject.

2. However, from statements made by responsible Andhra Ministers as reported in the press, I gather that they are expecting sanctions to Srisailam Project shortly. In this connection I have to point out that Mysore has repeatedly intimated her objection to the sanction of Srisailam and Nagarjunasagar before final settlement of allocations of Krishna waters (*vide* copies of this Government letters attached). Mysore has positive objections to both these projects for very strong reasons which will be elaborated at the time of the Inter-State Conference. Suffice it to state now that any such commitment would prejudice the issue of allocating the waters of Krishna and Godavari in accordance with the interest rights of this State and on an equitable basis, and in the best interests of the country.

3. Therefore, I request you to defer consideration of the Andhra Projects (like Srisailam, Nagarjunasagara final phase and Pochampad etc) until the allocations are finalised. It is needless to add that this Government cannot recognise the accrual of any rights on account of these projects in case they are sanctioned without this Government's consent thereto.

With regards,



DOCUMENT MYK. No. 89

Letter No. PWD 24 BRA 59, dated 17th September 1960, from the Secretary to the Government of Mysore Public Works and Electricity Bangalore, addressed to the Secretary, Planning Commission, New Delhi

Sub : Srisailm Hydro-Electric Project on the River Krishna in Andhra Pradesh.

It is seen from the tender notice published in the Indian Express dated 23rd August 1960 (copy attached) that the construction of the above project is in the offing. In this connection your attention is invited to this Government's letters addressed to various authorities as noted in the margin. It is clear therefrom that this Government has been consistently protesting against taking up this project and Nagarjunasagara Project before the waters of Krishna and Godavari are reallocated to the present States. Mysore Government regrets that inspite of so many protests made, the Planning Commission has not given any assurances that the Mysore Government's interests would be safeguarded nor even given any indications of such. As the Commission would be aware, the question of allocation of Krishna waters among the present States is engaging the attention of the Centre and the States and the Inter-State Conference in this connection has been arranged by the Ministry of Irrigation and Power to be held on the 26th of this month. Under the circumstances, the undertaking of the construction of the above project would prejudice the actual allocations

1. Letter No. PWD 1580 (B) 59 dated 7-8-1959 addressed to the Member (Planning & Investigation), C. W. & P. C., and Chairman, C. W. & P. C.

2. PWD 24 BRA 59 dated 17-5-1960 addressed to Member (P & I), C. W. & P. C., the Adviser, Irrigation, Planning Commission, and the Secretary, Ministry of Irrigation & Power.

3. PWD 24 BRA 59 dated 18-6-1960 addressed to the Secretary, Ministry of Irrigation and Power.

4. No. MPW 927-28/60 from the Minister for Public Works & Electricity, Government of Mysore, to the Minister for Irrigation & Power, Government of India.

5. No. M. P. W. 927-28/60 from the Minister for Public Works & Electricity addressed to Sri C. M. Trivedi, acting Deputy Chairman, Planning Commission.

to be done for which reason, Government of Mysore have already communicated that no rights would be deemed to accrue to Andhra Pradesh on account of undertaking of such projects before final allocations. This Government under their letter dated 7th August 1959 had requested the Member (Planning & Investigation), Central Water and Power Commission, to supply details pertaining to Srisailam and Nagarjunasagar Projects. However the Central Water and Power Commission have not arranged to supply the same till now though it is over one year since we asked for it. But all the same, whatever knowledge we have about these two projects goes to indicate that—

1. the scope of Nagarjunasagar is to a large extent outside the Krishna Basin whereas the Krishna waters were allocated for projects within the basin,

2. the Nagarjunasagar project caters for areas which were originally intended to be served by Ramapadasagar Right Bank Channel, resulting in non-utilisation of the surplus Godavari waters on the one hand and overdrawals of Krishna water at the cost of the Upper States on the other;

3. Nagarjunasagar was not a project considered for Krishna water allocations in 1951 and it's scope now is much more than what it would be to utilise the allocations made for lower Krishna Project;

4. in order to firm up power at Nagarjunasagar to 1 lakh K.W., as much as 60 T.M.C. ft. of water in all would be superfluous to the needs of the delta and would be wasted into Bay of Bengal when millions of acre in the arid and semi-arid region of the upper basin are thirsting for water;

whereas 1951 allocations prevented Bombay from diverting the balance waters (of about 40 T.M.C. ft.) at Koyna in the interest of irrigation even though that water would have resulted in about 3 lakhs K.W. of perennial power;

5. The Srisailam project would use the water going to Nagarjunasagar for hydro-electric power production and in addition export waters to Pennar Basin.

Therefore, Government of Mysore has very strong objection to entertaining both Nagarjunasagar as well as Srisailam projects in their present scope for the reasons quoted above and in case these projects are to be pushed ahead in spite of Mysore's repeated protests, Mysore reserves the right to utilise all the Krishna waters that fall or flow in its territories so as to safeguard the interests of her people and will not be bound to recognise any riparian rights, etc., of the lower State, particularly in respect of Srisailam and Nagarjunasagar.

However, it is hoped that Government of India will not sanction those projects without obtaining consent of the Upper States. The Planning Commission is requested to immediatly confirm that there is no commitment on their part to the sanction of the Srisailam and the Nagarjunasagar Project.

Copy to :

1. The Secretary to the Government of India,
   Ministry of Irrigation & Power, New Delhi.

2. The Chairman, Central Water & Power Commission,
   New Delhi.

DOCUMENT MYK No. 90

Letter No. P.A. No. 426 dated 11th October 1960, from the Secretary to the Government of Mysore, Public Works Department, Vidhana Soudha. Bangalore, to the Secretary to the Government of India, Ministry of Irrigation and Power, New Delhi.

Sub.—Krishna Basin—Andhra Pradesh Projects Srisailam and Nagarjunasagar.

I am directed by the Government of Mysore to invite your attention to the recent discussions that took place at the Inter-State Conference in New Delhi regarding the consideration of allocation of Krishna and Godavari waters *de novo*, based on equitable and rational principles and to the eventual failure in arriving at any decision, on account of the uncompromising attitude adopted by the Andhra Pradesh Government in the matter.

The Government of Mysore, therefore, would insist on the Government of India applying a brake to the commitments of Andhra Pradesh Government until the allocation is settled *de novo*. The Government of Mysore have already, at the Inter-State Conference discussions, proved that the Andhra Pradesh would get only about 25 per cent of Krishna waters, if the waters were allocated on a rational basis. This would mean their rightful share would be $0.25 \times 1745 = 436$ T.M.C.ft at 86 percent dependability or $0.25 \times 1965 = 491$ T.M.C.ft at 75 per cent dependability.

The Government of India in the Ministry of Irrigation and Power and in the Planning Commission, are therefore requested not to entertain any Commitments in regard to Nagarjunasagara and other projects under execution and contemplation to utilise Krishna and Tungabhadra waters in excess of rightful shares of Andhra Pradesh mentioned above.

Also, it is requested that no commitment on projects like Pochampad in the Godavari basin should be allowed before the rightful shares of all the parties involved are determined.

DOCUMENT MYK NO. 91

D.O. letter No. VS. 4276-E, dated 29th October 1960, from the Chief Minister, Government of Mysore, Bangalore addressed to the Minister for Irrigation and Power, Government of India, New Delhi.

I am enclosing herewith a copy of my letter regarding COPP Team's Report on Nagarjunasagar Project, addressed to Dr. A. N. Khosla, Leader of the Irrigation and Power Team. This report has revealed such astounding facts regarding which we were entertaining vague fears in absence of precise data. The project as planned would mean complete ruin of the Upper States which constitute 80 per cent of the Krishna Basin and about 90 per cent of the arid and semi-arid regions in the Krishna Basin. I have suggested some definite steps to be taken immediately in the scope of the project so that it will draw no more than the right-full share of Krishna waters that Andhra State is entiltled to, on the basis of well understood principles ensuring equity to all. I request you to please take necessary steps to effect these modifications and oblige.

With warm regards,

DOCUMENT MYK No. 92

D.O. Letter No. VS. 4277/E. dated 28th October 1960, from the Chief Minister, Government of Mysore, Bangalore, addressed to Dr. A. N. Khosla, Leader, Irrigation and Power Team, COPP & Member, Planning Commission, Yojana Bhavan, New Delhi.

I am in receipt of your No. COPP/IP/7/59/1448/60 dated the 13th August 1960 forwarding Irrigation and Power Team's Report on Nagarjunasagar Project (Andhra Pradesh). Thank you very much for the same. On a preliminary examination of the Team's Report, the following observations and points made therein, reveal matters which are highly detrimental to Mysore's interests.

In page 7, para 3.1.2 of the Report. it is stated that " While preparing the working table for the first phase in the 1954 Project, it has been assumed that no new projects will be undertaken in the Upper States during the operation of that phase...." The Nagarjunasagar Project has apparently been conceived on the basis of there being no projects in the Upper States for a long time to come. This I am sure, you will admit, is highly presumptuous and is in utter disregard of the existence of upper riparian States that have a right for the use of the Krishna Waters and which they contemplate for use in several projects. I am afraid, this has been responsible for our not getting clearance even for small projects in the Krishna Basin like Malaprabha, etc.

It is noticed that the utilisation for Nagarjunasagar and Srisailam is of the order of 671 T.M.C.Ft. *vide* page 45 of the Team's Report. Also it is noticed from page 41 of the Report that only about 50 per cent of the intermediate flows from Nagarjunasagar to Vijayawada Anicut are abstracted, such abstractions being of the order of 107 T.M.C.Ft. whereas the intermediate flows at 12¾ per cent of the total dependable flows of 1745 T.M.C.Ft. are 222 T.M.C.Ft. (*vide* page 123). Therefore the wastage of waters appears to be of the

order 222-107 equals 115 T.M.C.Ft. as per Team's working tables. Since these waters also need to come from allocations for new projects taken up after 1951, the total quotas required for Nagarjunasagar-*cum*-Srisailam seem to be of the order of 671 plus 115 equals 786 T.M.C. Ft. The requirements for first and second plan projects of Andhra Pradesh which includes only Nagarjunasagar Stage I, for a demand of 328 T.M.C.Ft. are shown to be 420 T.M.C.Ft. in the C.W.P.C's readjustments proposals of December 1959. Therefore the total quotas required for the new works in Andhra Pradesh, on completion of final stage of Nagarjunasagar-*cum*-Srisailam, seem to be of the order of 420 plus (786-328) equals 878 T.M.C.Ft.

As only 1000 T.M.C.Ft. of dependable flows were available for such new projects in the Krishna Basin, it is evident that there would be only 1000-878 equals 122 T.M.C.Ft. left for upper States, if Nagarjunasagar were to be completed as planned. To circumvent the difficulty to some extent the Team has proposed to lower the dependability to 75 per cent instead of 86 per cent. However this is not going to mean much relief so far as upper States are concerned. I had already indicated in my letter of May 1959 to Sri Kakasaheb Gadgil, the then leader of the Irrigation and Power Team (copy enclosed for ready reference) that the Team should consult the two upper State Governments in the matter and assure that the rights of Mysore derived on certain rational principles mentioned therein, should not be encroached upon by any projects lower down. I had also indicated that the new projects in Mysore conceived then which are all within Krishna Basin and entirely dependent on Krishna Waters, would need no less than about 570 T.M.C.Ft., based on very rough figures. Therefore, it is clear that the present Nagarjunasagar-*cum*-Srisailam which irrigates areas mostly outside Krishna Basin is entirely at the expense of the Upper Basin. Secondly the Upper Basin, most of which is extremely arid is to suffer for enabling raising paddy crop in high-rain-fall zones of Coastal Andhra. Surely, this is most inequitable and against the canons of waters distribution.

It is also noticed from Col. No. 10 of the C.W.P.C's Working Tables of Nagarjunasagar Reservoir (Appendix 4-A) that 168 T.M.C.Ft. would be drawn from the Reservoir for delta. As the flows from Nagarjunasagar to Vijayawada anicut are 222 T.M.C. the total waters reaching the Anicut are 222 plus 168 equals 390 T.M.C. Ft, As per column 2 and 3 of Statement II at Page 38 of the Report, the utilisation on delta are only 208.4 plus 9.3 equals 218 T.M.C. Ft. Therefore the wastage as per the C.W.P.C's proposals over the weir appears to be of the Order of 390—218 equals 172 T.M.C. Ft. And this excessive wastage appears to be provided just to

(a) firm up the power at Nagarjunasagar Dam ;

(b) to avoid expenditure on building the Pulichintala Dam which would have enabled coming out a major portion of the 222 T.M.C. of the intermediate dependable flows. (I believe, you had recommended taking up this project in your Report of 1953).

Therefore Government of Mysore cannot appreciate that precious waters of Krishna should be wasted when millions of acres in the arid and semi-arid regions of Krishna Basin are crying for water. It may be pointed out that Ex-Government of Bombay's proposals to divert to Arabian Sea about 108 T.M.C. Ft. of Koyna flows for generating perennial power at a head of about 1800 Ft. was not met with favour and they were asked to restrict the diversions to 67 1/2 T.M.C. Ft. only in the interest of Irrigation.

Therefore Mysore Government is definitely of the view that :

(*a*) the demand of the Nagarjunasagar Project on Krishna waters should be strictly limited immediately to the rightful share of Andhra Pradesh in Krishna waters based on well understood principles of equity, taking into account the drainage and culturable area, population and arid areas in the basin ;

(*b*) the extra needs of Nagarjunasagar may be met by diverting the surplus Godavari waters to the maximum possible extent.

(*c*) the wastage of water should be avoided by deleting the power aspect at Nagarjunasagar and conserving the waters from the intermediate catchment below Nagarjunasagar by storage at Pulichinthala or elsewhere.

The Government of Mysore have already communicated to the Ministry of Irrigation and Power and the Planning Commission, Government of India, that Mysore (*a*) reserves all the rights to utilise all the water that flows or falls in Mysore territory and (*b*) is not bound to recognise the riparian rights of Nagarjunasagar Project, etc., until and unless the waters of Krishna and Godavari are properly allocated and the utilisations are planned as per such allocations.

In the light of these issues involved, I trust that the Team's Report shall not be accepted by t he Planning Commission without the final modification of the utilisation based on the rightful share that the Andhra Pradesh would get as a result of allocation of Krishna waters on rational basis.

I am a member of the Committee on Plan Projects and I would request you to arrange for a meeting of the Committee to consider this report. I am sending a copy of this letter to the Chairman of the Committee on Plan Projects.

It is requested that this Government's views contained in this letter are also brought out in the supplementary Report, containing the team's recommendations and the Andhra Pradesh's comments.

With regards,

COMMENTS OF GOVERNMENT OF MYSORE ON COPP'S REPORT ON NAGARJUNASAGAR PROJECT.

Chapter I; *Paras* 1.1 *and* 1.2.

It is only the original command of lower Krishna Project (in Nalgonda and Warangal Districts) and a little fraction of the Right Bank Canal command that are in the Krishna basin. Otherwise the bulk of the Command is outside the Krishna Basin. Therefore Government of Mysore is opposed to the scope of the Project outside Krishna basin, before the needs of the basin are completely met. As already intimated to Ministry of Irrigation and Power and Planning Commission, Mysore is not bound to recognise the riparian rights of the project.

Paras 1.3 *to* 1.5

It is surprising that such a gigantic project has been allowed to be executed without technical clearance especially when the same for much smaller projects in Mysore basin have been held up for years.

Chapter II : *Paras* 2.11 to 2.13.

The objection of the 1951 Conference being selection of projects for the First Five-Year Plan it was not concerned with allocating the water resources, let alone all of them. The waters are to be allocated on well known principles of equity and justice taking into account various factors contributed by each State to the basin such as (i) drainage area (ii) sown area (iii) cultivable area (iv) scarcity affected area and (v) population. 1951 Conference did not do anything of the sort but sought to allocate waters on an *ad-hoc* basis, on demands of projects put up then. Even the *bona fides* of many of them were not scrutinised. Therefore the allocations are not tenable.

The "1951 Memorandum of Agreement" thus drawn is not ratified by Ex-Mysore and Orissa was kept out. Therefore no agreement has ever been

concluded and on the basis thereof there cannot be any allocations of water. Pending proper allocations Mysore reserves the sovereign right to utilise waters that fall or flow in her territory.

The Team was already informed of the situation by the Chief Minister of Mysore in May 159 (*vide* copy attached) and had suggested that the Team should discuss the matter with the Government of Mysore and Bombay. It is not understood why the same was not done.

Paras 2.21, 2.22, 2.23 *and* 2.24.

It is noticed even this so-called "1951 Agreement" which the Team wants to be followed has been completely sidetracked by Andhra State, since,

(a) The present Nagarjunasagar taken up, was not there in the picture of 1951 Conference and thus is not included in the same.

(b) The project is being designed at a dependability much lower then 86% at which the dependable flows were reckoned and were sought to be allocated in the so-called "1951 Agreement". The Government of India have been insistent on other States to count their quotas against the allocations at 86% dependability as per the so-called '1951 Agreement'.

(c) The project diverts Krishna waters outside Krishna basin since the so-called '1951 Agreement' permit such a diversion of water from the basin only in respect of Koyna project to the extent of 67.5 T.M.C.Ft.

All these deviations in respect of choice of projects, dependability of flows and diverting waters outside the basin should have been done by common consent. In view of this, the so-called '1951 Memorandum of Agreement' is completely repudiated by those who profess to swear by it. Therefore the Team's proposal at para 2.24 to distribute the Krishna waters on the same basis as in 1951 is incapable of being implemented, so far as

Nagarjunasagar Project is concerned. It is again noted with concern how Government of India has subscribed to all these deviations in allowing the Project to be executed.

In any case, Government of Mysore does not accept the validity of so-called '1951 Agreement' and demands that the scope of Nagarjunasagar Project is limited in such a way that Andhra's equitable share in Krishna waters is not exceeded in any way. Any additional intentions over and above this should be met by utilising Godavari surplusses as already envisaged under the Ramapadasagar Project. (Even if Ramapadasagar dam is not feasible it is possible to store waters upstream either on Godavari or the tributaries and divert the waters by means of a barrage at Pollavaram). There is neither technical difficulty nor of availability of waters.

It is urged that Government of India should take action to get the project recast on the above lines before according technical sanction thereto, and before any further commitments are made.

Paras 2.25 and 2.26

The scope of the project has been increased far beyond what was proposed in 1954 while getting the Government of India to admit the project in the first five-year plan. This seems to be the result of the fact the project has been admitted without technical clearance and State authorities have been taking undue advantage. Government of Mysore has already strongly urged that the Government of India should put an immediate brake on the project, pending recasting of the project as pointed out above.

Chapter III : Feasibility of First Phase.

The scope of the first phase project is also increased from time to time in spite of the fact that even the original scope was not at all feasible even according to the project working table (the lowest water level in the reservoir is 4' below the cill of the canals). This only indicates that the project

authorities never considered the first phase as an entity but was put only to serve as a think end of the wedge. While Government of India were made to believe that the first phase would irrigate 20 lakhs of acres and were thus made to readily accept the same, they would be ultimately forced to take up the entire scheme in continuation of the so-called first phase which would not in practice function. It is not understood how and why the Government of India have been lax in respect of this State's unauthorised and misleading actions.

Assumed inflows at Nagarjunasagar.

Secondly as pointed out by the Team at para 3.12 the working tables for the first phase in the 1954 project were based on the assumptions that there will be no abstractions by the upper projects. It is highly presumptuous on the part of the State concerned to have assumed no abstraction by the Upper riparian States and such presumption has been allowed to go unchallenged or uncorrected by the Government of India at that early stage. It is not understood how Andhra State even under the so-called " 1951 Agreement " can arrogate to itself the powers to dictate the pace of development in the upper States. It is noted with dismay how the Government of India have overlooked this highly injurious presumption. Would it therefore not be correct to say that the Government of India sought to hold up the Ghataprabha and the Malaprabha for years from giving technical clearance and now seek to hold up upper Krishna Project of the Mysore State from being included in the Third Five-Year Plan to help the Andhra State to go ahead with the Nagarjunsagar Project that has been based on presumptions, unauthorised and unfeasible assumption ?

Even the Team has proposed in their working tables that upper States should abstract half their share of waters (according to the so-called " 1951 Agreement ") during the pendency of first phase of Nagarjunasagar. Even

this assumption means putting a premium on the pace of development in the upper regions and as such it is not understood how the proposal has been made without even formally consulting the upper States, and obtaining their approval thereto. Mysore objects to this observation and does not agree to the restriction but reserves to itself the abstraction of water that it is entitled to in full, ignoring the existence of Nagarjunasagar Project.

Chapter IV, Availability of water for Nagarjunasagar-cum-*Srisailam*

At Appendix II, the Chairman, C.W.P.C. has worked out the availability of water at Nagarjunasagar out of 1745 T.M.C.Ft. as 562 T.M.C.Ft. This is on the basis of the so-called '1951 Memorandum of Agreement' which is no valid agreement. Therefore the correct availability would be much less than 562 T.M.C.Ft. as given by C.W.P.C., since the equitable share of Andhra Pradesh in the 1000 T.M.C.Ft. would be much less than 617 T.M.C.Ft. as worked out by C.W.P.C. in December 1959.

Based on the C.W.P.C's figures, the Irrigation and Power Team has stated at page 122 (Appendix II) that the available yields above Srisailam would be 527 T.M.C.Ft. which they have adopted for their working tables. However, in absence of a valid agreement for apportionment of Krishna flows, Government of Mysore is not obliged to guarantee this flow and therefore urges that the scope of the Nagarjunasagar and Srisailam and all other Andhra's projects are limited to rightful share of Andhra in Krishna water.

Government of Mysore has to observe the following in respect of C.W.P.C's working tables for the year 1945-46 given at Appendix IV :

(*a*) The guaged yields at Vijayawada for 1945-46 as given by C.W.P.C. in Appendix II-B is 1491 T.M.C.ft. Therefore, the total yield = 1491 plus 265 = 1756 T.M.C.ft. which exceeds the 86% yields by 1756 − 1745 = 11 T.M.C.ft. In spite of this, it is noted in the C.W.P.C's working table that the year 1945-46 a 90% dependability year unless they have knocked out all the bad years from the computation for this purpose.

(*b*) The Andhra's share in the 11 T.M.C.ft. of excess flow over and above the 1745 T.M.C.Ft. available at Srisailam as per the so-called "1951 Memorandum of Agreement" would be *0·4075 x 11=4·5 T.M.C.ft. Therefore the flows available at Srisailam for the year 1945-46, according to C.W.P.C's figures based on 1951 Memorandum should have been 527 plus 4·5=531·5 T.M.C.ft. But, the inflows at Srisailam assumed in the working tables given in Appendix IV at page 130-131 (column 4) are 625 T.M.C.ft. How according to the same CWPC the yields for the same year (1945-46) and as per the same 1951 allocations could be 531·5 and 625 T.M.C.ft. simultaneously is a mystery not explained by C.W.P.C. or even the Irrigation and Power Team. Obviously, this is a *mala fide* attempt with the support of C.W.P.C. to further misappropriate waters that belong to upper States to the extent of 625−531·5=93·5 T.M.C.ft.

(*c*) The inflows below Nagarjunasagar upto Vijayawada anicut are stated to be 12¼% of total both as per 1954 project and the I and P Team *vide* Appendix II. Therefore they are of the order of 0·1275 x 1756 = 224 TMCft in 1946. The flows let down the dam according to C.W.P.C's working tables (*vide* Column 10 page 135) = 168 T.M.C.ft. as against which the project authorities have provided only 131 T.M.C.ft. (111 for Delta irrigation and 20 for firming up power ... *vide* column (2), (3) and (13) of statement II on pages 37 to 40). Therefore the C.W.P.C's proposals mean in the first instance an excess provision of 168−131=37 T.M.C.ft. over and above what the project authorities had planned.

Secondly the total flows reaching Vijayawada anicut are 224 plus 168 392 T.M.C. ft. The flows drawn by the delta canals are stated to be 218 T.M.C. ft. (*vide* col. (2) & (3) of statement II on page 38). Therefore, the wastage over the weir would be 392-218=174 T.M.C. ft. The huge wastage

*As per the proportion worked out at page 45 of the Report.

In light of this experiment, Sri Venkatachari the Chief Engineer of Madras had proposed an addition of 8% to the gauged yields to account for this under-estimation by gauging. However, in the opinion of Government of Mysore the effective under-estimation would not be less than 13 to 14 per cent since the bulk of yields come during high flood times when high percentage discrepancies occur. Government of Mysore, therefore, suggests that C.W.P.C. should compute correct yields for various years from the known gauge depth of water at Vijayawada anicut and the results of Poondi Research Station. Pending this computation, Government of Mysore propose that the discrepancies may be reckoned at 12½% of the gauged yields.

Sd
(G. V. K. Rao),
Secretary to Government,
Public Works & Electricity Department.

repeatedly beyond what was contemplated in 1954 when it was accepted by the Planning Commission. The present scope is much in excess of even the socalled " 1951 Allocations ".

(*d*) The first phase project has made an assumption that the upper States will not abstract any water for new projects. This assumption made without entering into any agreement with the upper States is obviously a serious encroachment on the rights of the upper States and this encroachment will surely be not permitted either by the Central Water and Power Commission or the Planning Commission. Government of Mysore has to record its strong protest.

It is also noticed that inspite of our Chief Minister's letter to the Leader of the Irrigation and power team to discuss the recommendations with Mysore and Bombay States in order to safeguard their legitimate rights. the report has been finalised without such consultation. Therfore Government of Mysore requests that this Report be not accepted before it is fully discussed by the Committee on Plan Projects.

DOCUMENT MYK NO. 94

Letter No. MPW 1611/60 *dated* 18/19-12-60, *from the Minister for Public Works and Electricity Government of Mysore, Bangalore, addressed to the Minister for Irrigation and Power, Government of India, New Delhi.*

May I please draw your kind attention to the Press Report dated 19th November 1960 vide copy attached for ready reference wherein Sri A. S. Raju, Minister for P.W.D., Andhra Pradesh Government is determined to go ahead with the second phase of the Nagarjunasagar Project and no force on earth could stop its programme ''. We have repeatedly made it clear that Nagarjunasagar Project has been based on the socalled '' 1951 Allocations'' which are neither valid nor fair. Secondly the scope of this project has been expanded from time to time. Consequently the total utilisation in Andhra Pradesh on completion of this project and other schemes would exceed even the socalled '' 1951 Allocation ''. The available yields above Srisailam are only 527 T.M.C.Ft. out of 1745 T.M.C.Ft. (86% dependability) as worked out at page 122 of COPP Report on Nagarjunasagar Project based on the Chairman, C.W.P.Cs. figures which in turn are based on the socalled 1951 Allocations. As against this, the C.W.P.C's Working Table for Srisailam-cum-Nagarjunasagar at page 130-131 of the COPP Report draw 625 T.M.C.Ft. (at 90% dependability) above Srisailam, in order to meet the needs of this project and other works below. Therefore it is clear that the final phase of Nagarjunasagar Project would mean further encroachment on the waters belonging to Upper States to the extent of about 100 T.M.C.Ft. than the socalled 1951 Allocations which in themselves are unfair to the Upper States. It is for this reason that Nagarjunasagar Project cannot be allowed to be planned as now envisaged.

It has been made clear that the scope of Nagarjunasagar Project has been predominatly outside the Krishna basin since it diverts water into the other basins of rivers in Coastal Andhra at the expense of the Upper regions. It is

significant to note that while the Upper Regions in Krishna basin thus to be deprived of their legitimate waters are the second driest region in India being next only to Thar Desert, the areas proposed to be served by Nagarjunasagar Project in Guntur, Nellore and West Godavary Districts are not only mostly outside the Krishna basin but endowed with good rain-fall of 40 to 45″ per annum and the existing irrigation in those Districts is of the order of about 30% of the cultivable land. It is for this reason that this Government has been insisting that the scope of this project should be immediately curtailed and replanned on the basis of legitimate Andhra's share in Krishna waters which would not exceed about 25% of the flows on any equitable principles. Any additional scope should and could be planned only on the basis of importing Godavari surpluses into the Krishna basin, thus releasing equivalent demand on the Krishna waters which could be made available to the Nagarjunasagar canals to feed areas outside Krishna basin.

Shri Raju has been claiming that the 1951 Allocations were based on demands of all commandable areas irrespective of basins and therefore equitable. The fallacy in this statement is that since it was the waters of a particular river (Krishna) that was to be distributed, consideration of commands in any other basins also means sacrificing of the interest of Krishna basin for augmenting supplies to other basins in addition to their own resources, which, in this particular case, are considerably higher than those of Krishna basin (rain-fall in Bijapur-Sholapur tract is only 20″ or less, whereas that in Coastal Andhra is 45″). Apart from this basic flaw, further injustice to upper basin has been caused since all possibilities therein were not assessed in 1951 on the one hand and exaggerated and overlapping demands for the extra-basin projects of Madras were considered, on the other. If it is fair to consider all commands irrespective of the basins, then why was it that Andhras agitated against the Krishna-Pennar Project which provided for commanding Madras and southern districts ?

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Further Shri Raju has claimed the Nagarjunasagar Project is based on the considered recommendation of Dr. A. N. Khosla and therefore is in the best interest of the Nation. As already made clear by me on September 26th, the Khosla Committee was asked to advice on the utilisation and Planning of Madras State only. Therefore, Khosla's recommendations have nothing to do with thenational interest. Khosla's main consideration in substituting Krishna-Pennar Project by Nagarjunasagar was that the areas near the Krishna river have greater claims to Krishna waters than the distant lands beyond Pennar upto Chidambaram. Does it not follow from this that the lands within the basin have still greater claims to Krishna waters? Khosla has made this principle specific in respect of Godavary waters. He would have arrived at same conclusion if only he was asked to distribute the entire waters of Krishna independent of the socalled "1951 Allocations". Therefore it is impossible to derive any justifications for the export of waters at the cost of the basin from Khosla's recommendations.

No diversion of Krishna waters outside the basin stipulated in the socalled "1951 Allocations" as is the case with Koyna scheme. Nagarjunasagar Project, therefore, offends against even the socalled "1951 Allocation". Under the circumstances the Upper States would not be bound to let down waters more than the legitimate shares of Andhra Pradesh on equitable basis, and this might result in infructuous expenditure on the Nagarjunasagar Project, unless necessary curbs on Andhra's intentions to go ahead with this Project are enforeced by the Centre without further delay.

Shri Raju has alao been mentioning that Andhra Pradesh is going to be the main granary of the Nation and therefore he wants that all the scheme as being planned should not be curtailed. While making this statement he has been indirectly admitting the fact that the neighboring States are deficit in food grains production. This deficit cannot be allowed to remain in view

of rapidly growing population. Even if Andhra were to supply the food grains the same has got to be purchased at price; the same has got to be transported from the centre of production in Andhra to the distant lands. Without adequate waters the people in the dry Upper basins would be deprived of their only major means of livelihood, namely, agriculture and thus they would be empoverished and would not be able to pay for food grains grown in Andhra Pradesh and the cost of their transport. Therefore, it is needless to further elaborate the point that over production in one place is no substitute to uniform production on all the available culturable lands. Therefore it is earnestly hoped that Government of India will not be misled by the fallacious claims putforth by the Andhra Pradesh authorities.

The Andhra Minister has also remarked that Mysore and Maharashtra are motivated by narrow and selfish motive in demanding a *de-novo* consideration of the question of allocations. From the facts put forth by us in the past as by Government of Maharashtra it is clear that these two States are demanding nothing more than an equitable share.

I request you to take necessary measures to settle the question of allocations equitably without further delay, meanwhile applying necessary brakes on the Nagarjunasagar Project.

DOCUMENT MYK NO. 95

Letter dated 3rd April 1961, *from Shri B. D. Jatti, Chief Minister, Mysore State, to Dr. A. N. Khosla, Leader of I. & P. Team, Planning Commission.*

Subject.—COPP Report on Nagarjunasagar Project.

Reference.—Your D. O. No. COPP/I & P, dated 10th February 1961.

I thank you for your kind letter mentioned above. It is mentioned by you in your letter " that there is evidently some misunderstanding about the import of certain remarks which, if considered in that context as explained are not in any way prejudicial to any interests including those of Mysore State". In order to clear off this " misunderstanding ", a technical note was also attached to your above letter. The detailed study of the technical note has revealed that there has not been any meterial misunderstanding at all, as may be seen from the detailed comments on the note accompanying your letter now enclosed to this letter. It is seen therefrom that the fears regarding the Nagarjunasagar Project as already expressed in my previous letter are well-founded and should not be overlooked.

2. I can understand the limitations of the Planning Commission's Team with reference to the 1951 allocations supposed to have been done under the aegis of the Planning Commission. But what cannot be understood is, (*a*) why the Team could not even formally discuss the matter with Mysore and Bombay Governments as specifically suggested by me, in view of the fact that the 1951 memorandum of allocation was not ratified by Mysore and hence not legalised ; and (*b*) why the Team is even now fighting shy of indicating the correct state of affairs with regard to the (i) the total irrigation planning on Krishna flows in Andra Pradesh ; and (ii) the exact wastages at Vijayawada implied in the Andhra's planning.

3. I am glad that you intend to place the Report before the Planning Commission and the Committee on Plan Projects. I would request you to include the entire correspondence including this letter and its enclosure in the final Report.

With kind regards.

(Enclosure contd.)

Enclosure

Comments on Technical Note Accompaning Dr. A. N. Khosala's D. O. letter No. COPP/I & P/7/59 of 10th February 1961.

Para (1) *of Note.*—The material fact is that the Team has prepared working tables for Nagarjunsagar First Phase, on the presumption that the Upper States will be utilising only half of their allocations for new projects (*vide* para 3. 2.1. of the Team's Report). This indirectly implies a ceiling on the upper utilisations for the unspecified period until the Nagarjunsagar final phase was to be taken up, completed and commissioned and for all this no agreement has beeen entered into by the Team with the Upper States. Therefore the remarks in Chief Minister Mysore's letter No. VS 4277 CM, dated 28th October 1960 are in order.

Para (2) of Note.—The figure of 878 mentioned in Chief Minister's letter is not claimed to be C.W.P.C's allocations at all, on the contrary it is believed to be the intention of the Andhra Pradesh for the ultimate utilisation which definitely reveals the very large excess over even the so-called 1951 allocations which in themselves are unjust to Upper States. There cannot be any dispute about this excess planning since the team themselves have mentioned it throughout their report and devoted an entire chapter (III) to deal with this very excess. These excesses are worked out at 109 T.M.C. ft. *vide* explanation V of Statement III at page 45 of Team's Report. Again this excess is exclusive of the later extra intention of.—

(*a*) drawing 168 T.M.C. ft. from Nagarjunsagar Dam for power and delta irrigation as per working table at Appendix IV-A, page 135 of the report insted of only (111 plus 20)=131 T.M.C. ft. assumed by the Team, thus constituting an additional excess planning of (168—131) =37 T. M. C. ft.

(*b*) requirements of 1½ lakh acres of additional command intended to be added on to Nagarjunasagar Right Bank Canal, in accordance with the intentions expressed at Appendix III of Team's Report

and which are taken cognisance of, by the Team at para 2.2.6 thereof. These extra waters are stated to be of the order of 27 T.M.C.ft., if all wet, and 18 T.M.C.ft., if one-third wet and two-third dry.

Therefore, as per Team's finding the total excess planned by Andhra Pradesh =109 plus 37 plus 18 to 27 is equal to 164 to 173 T.M.C.ft. Therefore the total quota that would be required to meet the intentions according to facts and figures available in the Team's Report come to 587.5 plus 173 is equal to 760.5 out of 1,000 T.M.C.ft. Therefore the contention of Chief Minister's letter that there is encroachment upon even the meagre allocations of 1951 meant for Upper Sates is established.

Para (3) *of Notes.*—No comments.

Para (4) *of the Note.*—Here the unutilised balances are stated to be 222—(107+56+7)=52. This equation has ignored the water let down from the Nagarjunasagar Dam merely for firming up power. 'These Waters amount to 20 T.M.C.ft. as per Team's working table and 1954 Project, and 57 T.M.C.ft. as per C.W.P.C.'s working table at Appendix IV. Therefore the wastage are of the order of 52 plus 20 or 57=72 or 109 T.M C.ft., out of 1,745 T.M.C.ft. of total flows according to 1954 Project or latest intentions respectively. Since, however (i) the waters are to be utilized at 75 per cent dependability, (ii) the flows at Vijayawada are under-estimated from about 7 to 29 per cent *vide* Appendix V-C, and (iii) there are other omissions, the actual 75 per cent dependable yields are of the order of 2,340 T.M.C.ft. Therefore the proportionate yields of catchment below Nagarjunasagara, out of this 2,340 T.M.C.ft. of total yields are 300 T.M.C.ft. The total wastages that are inherent in the present planning are, therefore, as under:—

Inflows—	T.M.C.ft.
(1) Flows let down Nagarjunasagar Dam	168
(2) Flows from catchment below Nagarjunasagar	300
(3) Total flows into catchment below Nagarjunasagar	468
Utilisations—	
(1) Old utilisation in catchment below Nagarjunasagar and above Vijayawada	56
(2) Moosi Project	7
(3) Delta	218
	281

Wastage = Total inflows—Total utilisations is equal to 468—281 is equal to 187 T.M.C.ft. This wastage cannot be overlooked especially when millions of acres of land is Upper regions are crying for waters.

Therefore, neither the figure of only 52 T.M.C.ft., of waste, nor the explanation that "uses will have to be found by Andhra Pradesh" therefore are acceptable.

Para (5) of Note.—The figure of 878 in Chief Minister's D.O. might not be directly deducible from the Team's Report. But the fact remains that the fiigure of 760.7 which is nearly 180 T.M.C.ft. in excess of the 1951 allocations is deduced from the Team's Report. (*Vide* comments against para 2 of the note). The conclusions drawn in the Chief Minister's letter are still correct. 10

Para (6) of Note.—The Team has adopted a figure of 111 T.M.C.ft. for delta irrigation and an additional 20 T.M.C.ft. for "firming up power" at Dam Power House stated to be a capacity of about 45 M.W. Thus the Team has adopted 111 plus 20=131 T.M.C.ft.

The working Table of C.W.P.C. (Appendix IV-A) has provided for 168 T.M.C.ft. of water to be let down Nagarjunsagar Dam. The memorial fact is not what the Team adopts but what the C.W.P.C. representing Government of India adopts and on which Andhra Pradesh relies. Therefore, Mysore cannot overlook the C.W.P.C.'s working tables.

DOCUMENT MYK. No. 96

Letter No. PWD 26 BRA 61, dated the 22nd January 1962, from the Secretary to the Government of Mysore, Public Works and Electricity Department, Bangalore, to the Secretary to Government of India, Ministry of Irrigation and Power, New Delhi.

Subject:—Srisailam Project and Somasila dam Project on Pennar proposed by Andhra Pradesh

I am directed to invite your reference to the news item in the "Hindu" (Madras), dated 17th December 1962 as extracted below.

"A proposal to construct a dam at Somsila on Pennar at a cost of Rs. 10.36 Crores was under consideration of the State Government. It was designed for flood control but it would also give some irrigation and power benefits. About 9.27 lakh acres were expected to be irrigated under the scheme with suitable assistance from the Krishna River waters.. The Central Water and Power Commission had made certain comments on the project which were being examined by the Government. This information was given by Mr. A. C. Subba Reddy, Minister for Irrigation and Power in reply to a question by Mr. Vavilala Gopalakrishnayya (Ind.) in the State Assembly yesterday.

2. As the Government of India are aware, the question of sharing of Krishna-Godavari waters is not yet finalised. We have repeatedly represented to the Government of India, our serious objections to the Nagarjunasagar Project as planned and the Srisailam Project depending on Nagarjunasagar Project, *vide* our 17 letters addressed to Government of India authorities copies of which are at appendix II at pages 113 to 132 of Mysore Governments memorandum (1962) on Krishna-Godavari waters, enclosed herein for ready reference. Under these circumstances when the question of allocations itself is unsettled, it is unthinkable to envisage further projects like Somasila dam on Pennar proposing to utilise Krishna waters on a large scale and that too entirely outside the Krishna basin.

3. It is well known fact that there is hardly any water left in the River Pennar inasmuch as its limited resources are practically exploited already. The "assistance from Krishna" to Somasila Project as contemplated by Andhra Pradesh authorities has to be ruled out, as could be seen from facts and figures collected by the Krishna-Godavari Commission. The demands of all the 3 Upper tributaries of Krishna (Bheema, Upper Krishna and Tungabhadra) far exceed the available flows in those sub-basins. Accordingly, after meeting the needs of the upper sub-basins, practically there would be no flows available for Srisailam project located just below the confluence of Krishna and Tungabhadra. Moreover, the question of foregoing any of the irrigation projects in the upper basins for the sake of Srisailam and/or Somasila projects does not arise for the following simple reasons:

(*a*) both Nagarjunasagar and Somasila projects are essentially extra basin in scope.

(*b*) the areas in the upper sub-basins are all famine striken with an average rainfall of less than 20 inches and reaching a low figure of 9 inches whereas the areas commanded by Nagarjunasagara or Somasaila project are blessed with 40 to 45 inches of rainfall, where 35 to 40 per cent cultivable land is already provided with irrigation.

Therefore there is no prospect of assisting the Somasila Project with Krishna waters.

4. In view of the above this Government reiterate its serious objections to Nagarjunasagar, Srisailam and now to Somasila project also and urge Government of India to solve the question of allocations of waters forthwith before considering the Andhra Pradesh's proposals to further divert Krishna waters outside the Krishna basin.

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DOCUMENT MYK. No. 97

Copy of Letter No. MPW. 1966–63, 12th July 1963 from the Minister for Public Works, Government of Mysore addressed to the Minister for Irrigation and Power, Government of India, New Delhi.

I enclose herewith a copy of my letter dated 12th July 1963, addressed to Shri Nandaji, Minister for Planning regarding Srisailam Project. I shall be glad to have your reactions in the matter.

With kind regards.

Copy of letter No. MPW. 1965–63, dated 12th July 1963 from the Minister for Public Works, Government of Mysore, addressed to the Minister for Planning, Government of India, New Delhi.

I am enclosing herewith a copy of the News item that appeared in the 'Hindu' dated 1st July 1963. It is understood therefrom that the Planning Commission has suggested utilising 180 TMC ft. at Srisailam Project of Andhra Pradesh. In this connection, I have to point out that this Government has been requesting the Centre not to sanction this Project until and unless the waters of Krishna are equitably allocated, which has not yet been done. In their statement dated 23rd March 1963, the Irrigation and Power Ministry has made some *ad-hoc* proposals according to which this Project can hardly get more than 100 TMC ft. The Irrigation and Power Ministry has already been apprised of this position. Therefore, the Planning Commission's suggestion to allow 180 TMC ft. for this Project is tantamount to not only injuring Mysore's interest but also going beyond the limits prescribed by Irrigation and Power Ministry.

Under the circumstances, I have to request you kindly to see that no clearance to this Project is given until the allocation of waters is properly settled.

With kind regards.

News item in Hindu, *dated 1st July 1963*

SRISAILAM PROJECT—UTILISATION OF WATERS

Andhra Government seek clarification

(From our Correspondent)

Hyderabad, June 30

The State Government are understood to have sought certain clarifications from the Central Water and Power Commission, in regard to the water to be utilised for the Srisailam Hydro-Electric Project.

It is understood that the Planning Commission had suggested that the State should restrict the use of waters for this Project to 180 TMC instead of 210 TMC as envisaged.

The Project was designed to generate 300 mW. of power with the utilisation of 210 TMC ft. The State, it is learnt, would like to know how Central Water and Power Commission arrived at the figure of 180 TMC ft.

DOCUMENT MYK No. 98

Copy of D. O. letter No. NR 8 (35)—62, dated 31st July 1963, from the Minister for Planning and Labour and Employment, New Delhi, addressed to the Minister for Public Works, Mysore State, Bangalore.1.

Kindly refer to your letter No. MPW 1965--63, dated 12th July 1963, regarding sanction of Srisailam Project of Andhra Pradesh, I enclose herewith a note which explains the position in regard to the availability of 180 TMC ft. at Srisailam Project. This is a minimum figure based on conservative estimates. Note has also to be taken of the fact that Srisailam Project, being a Hydro-Electric Project, does not involve consumptive use of water except for evaporation losses.

In these circumstances, I presume there will be no objection to this important power project being proceeded with.

With regards.

PLANNING COMMISSION

(Irrigation and Power Division)

Note on Srisailam Hydro-Electric Project

1. In para 18—69 of the Report of the Krishna-Godavari Committee, it is stated as under :

> " It is clear that the Srisailam Project would fit in any scheme and from this point of view, there should be no objection to starting work on the Srisailem Project, the only hydro-electric development left in the Lower Krishna area. The scope of the project would, however, have to be reviewed as soon as the priliminary plan mentioned above has been prepared.

2. In the Lok Sabha statement of March 23, 1963 the Minister for Irrigation and Power had made the following observations regarding clearance of Srisailam Project. (*Vide* para 14)

(Departmental Library)
Accession No. (B) 1285
Date.....

"I consider that the projects mentioned below for the various States should be cleared, subject of course to such technical examinations and scrutiny as are normally carried out by the CW & PC and the Planning Commission before approval is conveyed on behalf of the Government of India.

"In Andhra Pradesh, the Srisailam Hydro-electric Project, modified on the basis of the flows required for the sanctioned Nagarjunasagar Project (264 TMC) and taking into account the possibilities of diversion of Godavari waters from Inchampalli and Polavaram, and inflows between Srisailam and Nagarjunasagara Project sites." 10

3. On the basis of the assumptions given in the Krishna-Godavari Commission's report, and data available in the CW & PC, it is estimated that the release from Srisailam may be of the order of 208 TMC ft. in the Post-Godavari diversion stages as per details below :—

	TMC
(*a*) Withdrawals under Nagarjunasagar Stage 1 (Pre-Godavari diversion Stage).	264
(*b*) Replacement by Godavari waters (as per areas suggested by the Krishna Godavari Commission.)	55
(*c*) Net diversions under Nagarjunasagar Stage I [in the post-Godavari Stage (*a*)-(*b*)].	209
(*d*) Evaporation losses at Nagarjunasagar	14
(*e*) Inflow required at Nagarjunasagar (*c*) + (*d*)	223
(*f*) Inflow between Srisailam and Nagarjunasagar Sites	15
(g) Net release from Srisailam (e)—(f)	208

4. On the basis of an annual release of 208 TMC and average head of 325 ft., the power potential at Srisailam would be 153,000 kW. at 100 per cent load factor or 256,000 kW. at 60 per cent load factor.

5. The Krishna-Godavari Commission in its report contemplate diversion from the Godavari at either Alabaka or Inchampalli. In this context, however, it is also necessary to consider the possibility of diverting surplus Godavari waters from a higher elevation on the Godavari, than that contemplated by the Krishna-Godavari Commission which may provide a greater amount of replacement waters for Nagarjunasagar (stage I) Irrigation. These possibilities have necessarily to be investigated and examined in detail. Pending such investigations and examination, it is suggested that for purposes of assessing the effect of Godavari diversion on Srisailm, at the present time, the possibility of a further replacement of 30 TMC., may be allowed for. This will reduce the annual releases for power generation at Srisailam from 208 TMC. to about 180 TMC. The Power potential at Srisailam would then be of the order of 134,000 kW at 100 per cent load factor or 224,000 kW at 60 per cent load factor.

6. It will, therefore, be seen from the above that the approval accorded is in keeping with the Krishna-Godavari Commission's recommendations and statement of Minister of Irrigation and Power in the Lok Sabha.

DOCUMENT MYK No. 99

Copy of D. O. No. PWD 24 BRA 59, dated 20th January 1964, from the Hon'ble Minister for Public Works Department, Government of Mysore, addressed to the Deputy Chairman, Planning Commission, Yojana Bhavan, New Delhi.

Subject.—Srisailam Hydro-Electric Project in Andhra Pradesh—Clearance to.

Reference.—Shri Nanda's letter No. NRI (35)—62, dated 31st July 1963.

With reference to the above, it has to be clarified, in the first instance, that the basis for the clearance of Srisailam Project as enunciated by the Union Minister for Irrigation and Power in his statement, dated 23rd March 1963, is the requirement of Nagarjunasagara Stage I reduced by possible replacements therein by diverting Godavari surpluses. Since this State is not a party to the Nagarjunasagara Stage I itself, we are not party to this Srisailam either at this stage.

2. Even within the terms of the Union Minister's statement, dated 23rd March 1963, the demands of Nagarjunasagara I Stage that could be replaced by Godavari waters will be much more than those assumed by Planning Commission as may be seen from the technical note enclosed. Similarly the yields from Srisailam to Nagarjunasagara which are assumed at only 15 TMC. are too much on the low side. With the possible diversion from Inchampalli Reservoir to come, the net requirements at Srisailam would be hardly 100 TMC. Ft. Perhaps the right bank canal from Pochampad Project on Godavari might also be in a position to deliver some water into Nagarjunasagara, as a result of detailed investigation of the water potential and optimum requirements in the Godavari valley, in which event the net requirement at Srisailam might further reduce.

3. Under these circumstances, we are sorry to note that the Planning Commission have cleared this project for 180 TMC. Ft. to 208 TMC. Ft. rather in a hurry. Thus it is feared it would constitute an under drain on the Krishna waters and therefore prove prejudicial to the equitable allocations. Therefore, I would earnestly request you to reconsider this decision and defer the decision regarding the actual scope of the project until (a) all the Godavari links are investigated and (b) when the question of final allocation of water is taken up.

With regards,

ANNEXURE

GOVERNMENT OF MYSORE

(Public Works Department)

Comments on Planning Commission's Note enclosed with Shri G. L. Nanda, Minister for Planning's letter, dated 31st July 1963 on the availability of water for Srisailam Hydro-Electric Project in terms of Lok Sabha statement dated 23rd March 1963.

In para 3(b) of the note, replacement by Godavari waters as per areas suggested by the Krishna-Godavari Commission are shown to be 55 TMC. Ft. It will be noticed that the Krishna-Godavari Commission have in the first instance taken the Godavari diversion channel from a pick-up weir at Alabakka which is much lower than the Inchampalli Reservoir from which also it is feasible to divert waters as stated by the same Commission. The commandability of the Alabakka channel is decidedly much lower than that from Inchampalli. Secondly the Commission has dropped the diversion channel into the contemplated Pulichintala Lake instead of carrying the waters in contour across Krishna to irrigate more lands. This Government have indicated these facts both to the Krishna-Godavari Commission as well as Central Water and Power Commission. From the topo sheet studies made here, it seems about 50 per cent of the command under Nagarjunasagar Project can possibly get water from Godavari. Under these circumstances the maximum possible replacement of the demon of the Nagarjunasagara First Stage would amount to 50 per cent of the 264 or 132 TMC. Ft.

Regarding para 3 (f) of the Planning Commission's note, inflow between Srisailam and Nagarjunasagara sites is taken at 15 TMC. Ft., only. However it will be seen from Krishna-Godavari Commission's report that the catchment from Srisailam to Nagarjunasagara more or less coincides with sub-catchment K7 (lower Krishna) plus K10 (Musi) minus a very small portion of the

catchment of main Krishna below Nagarjunasagara up to the Sea. However it will also be seen that catchment K16 (Musi) does not yield in any surplus, since its ultimate demand exceeds the total flows therein *vide* figures in para 15·11 of Krishna-Godavari Commission's Report. Under these circumstances, practically the yield figure for K7 with marginal corrections would approximate to the yields between Srisailam and Nagarjunasagara. Accordingly it will be seen the total yields of K7 are estimated at 217 TMC. Ft., *vide* page 240 of Krishna-Godavari Commission's Report. The total requirements of minor and medium works utilising the waters of catchment are as under as derived from figures given at pages 241 and 242 of the Krishna-Godavari Commission's Report :

	TMC. Ft.
A. Pre-1951 Works :	
(i) Medium schemes	2·3
(ii) 45 Minor tanks and diversions	39·0
(iii) Estimated evaporated losses	31·1
	73·1
B. Development since 1951 :	
(i) Medium projects	3·4
(ii) 11 Minor schemes	5·5
(iii) Improvements to existing Projects....	23·6
(iv) Estimated evaporated loss	5·0*
	37·5
C. Future Development :	
(i) 3 Medium schemes	5·4
(ii) 33 Minor schemes	8·3
(iii) Improvements to existing projects	6·0
(iv) Estimated evaporation losses	37·0**
	56·7

Total ultimate requirements in the catchment

K7 = (A)+(B)+(C)=167·3 TMC. Ft.

Therefore it will be seen the waters available for Nagarjunasagara from this catchment would be of the order of 217—167=50 TMC Ft., as against only 15 TMC. Ft., assumed in para 3 (f) of Planning Commission's note.

Accordingly the figures in para 3 of Planning Commission's note may have to be revised as under:

	TMC. Ft.
(*a*) Withdrawals under Nagarjunasagara Stage I (pre-Godavari Diversion Stage)	264
(*b*) Maximum probable replacement by Godavari waters from Inchampalli Canal	132
(*c*) Net diversions under Nagarjunasagara Stage I, in the post Godavari Stage=(*a*)−(*b*)=	132
(*d*) Evaporation losses at Nagarjunasagara	14
(*e*) Inflow required at Nagarjunasagara (*c*+*d*)	146
(*f*) Inflow between Srisailam and Nagarjunasagara Sites	50
(*g*) Net release from Srisailam=E−F=146−50=	96
or say	100

Thus it will be seen the requirement of Srisailam seem to be round about 100 TMC. Ft., only, as noted above.

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* The total losses given in the Commission's report are 19 TMC. Ft., comprising 14 TMC. Ft., for Nagarjunasagar also. Therefore only 5 TMC. Ft., pertain to minor and medium works.

** The total losses given at page 242 of Krishna-Godavari Commission's report are 73.8 TMC. Ft. But it is understood that 14 TMC. Ft., pertain to Nagarjunasagara and 23 TMC. Ft., to Srisailam. Therefore only 37 TMC. Ft., pertain to the medium and minor works.

DOCUMENT MYK No. 100

D.O. No. 1-2 (4)/64-I & P
My dear Patil,

Planning Commission, New Delhi,
July 27, 1964.

Please refer to your letter of 20th January, 1964, regarding Srisailam Project. I am sorry this letter has not been replied so far. I understand from the Ministry of Irrigation & Power that they are hoping to have some talks on the Krishna Godavari problem soon and once that problem is satisfactorily settled the controversy about the scope of Sriailam would disappear. I am sure the points raised by you would receive due consideration while arriving at a final settlement.

With best wishes,

Yours sincerely,
Sd/-
(Asoka Mehta)

Shri Veerendra Patil,
Minister for Public Works,
Govt. of Mysore, Bangalore.

DOCUMENT MYK NO. 101

GOVERNMENT OF MYSORE

Regd. Ack. Due.

Mysore Government Secretariat,
Vidhana Soudha,
Bangalore, Dated, 11th April 1968.

No. PWD 1 BRA 59.

From
The Secretary to the Government of Mysore,
Public Works and Electricity Department.

To
The Secretary to the Government of Andhra Pradesh,
Public Works Department, Hyderabad.

Sir,

Sub:—Utilisation of the waters of river Krishna.

I am directed to state that the Government of Mysore has all along been urging for a fair and equitable distribution of the waters of river Krishna in order that the State of Mysore may get its legitimate share therein. With reference to the Nagarjunasagar Dam and the Srisailam Dam undertaken by the Government of Andhra Pradesh, it has been pointed out how thereby the interests of the State of Mysore and its people would be adversely affected. There was no accord on the matter, with the result that a dispute regarding the waters of an Inter-State River within the meaning of the Inter-State Water Disputes Act, 1956 arose. As this was not settled by negotiations the Government of Mysore applied to the Central Government by its letter dated 29th January 1962, requesting that the dispute might be referred to a Tribunal for decision in accordance with the provisions of the said Act.

The Central Government did not make the reference, though repeated requests in this behalf were made by the Government of Mysore. In the meanwhile, the Government of Mysore came to know that arrangements to instal crest gates in the Nagarjunasagar Dam were being expedited. It was felt that if this was done several complications were likely to arise, besides very seriously jeopardicing the legitimate claims of the State of Mysore in the matter.

You are aware that the several meetings and conferences were held, at which the Government of Andhra Pradesh was also represented, and the dispute could not be resolved. It has become abundantly clear that the dispute cannot be settled be negotiations and that the only course left for its proper adjudication is by referring it to the Tribunal. The Government of Mysore has brought this to the notice of the Central Government and has also made every attempt to impress on it the urgency of the matter in view of the action contemplated by the Government of Andhra Pradesh to instal the crest gates, etc.,

The Central Government is being urged to refer the matter to the Tribunal at once as requested by the State Government so long ago as 29th January 1962. Any attempt by Andhra Pradesh Government to go ahead with the Second Stage of Nagarjunasagar Project by constructing crest gates during the pendency of this dispute would amount to negativing the substantial claim made by the Government of Mysore. It is neigher fair nor proper for one of the parties to the dispute to do anything that is likely to create difficulties and complications in the adjudication of the dispute.

The Government of Mysore therefore requests the Government of Andhra Pradesh by this letter not to proceed with the erection of the crest gates on the Nagarjunasagar Dam pending the final adjudication of the

dispute. No unilateral action taken by the Government of Andhra Pradesh during the pendency of this dispute can adversely affect the rights and interests of the State of Mysore and its people.

I do hope that having regard to the amity among the people of neighbouring States, the Government of Andhra Pradesh would immediately comply with the request made in this letter.

Yours faithfully,
Sd/-
(Chandappa Patel)
Secretary to Government,
Public Works and Electricity Department.

Copy forwarded to the Advocate-General, Bangalore, for information.

Sd/-
(Chandappa Patel)
Sectretary to Government,
Public Works and Electricity Department.

DOCUMENT MYK No. 102

GOVERNMENT OF ANDHRA PRADESH

Public Works Department.

Letter No. 1565-N1/68-1

Dated Hyderabad, the 25th May 1968

From

Shri M. T. Raju, I.C.S.,
Chief Secretary to Government.

To

The Secretary to the Government of Mysore,
Public Works and Electricity Department,
Vidhana Soudha, Bangalore.

Sir,

Sub :—Utilisation of Waters of River Krishna.

Ref :—Your letter No. PWD 1 BRA 59, dated 11th April 1968.

I am to refer to your letter cited requesting this State Government not to proceed the erection of the crest gates for the Nagarjunasagar Dam. The reason adduced in support of the request is "that any attempt by the Andhra Pradesh Government to go ahead with the Second Stage of Nagarjunasagar Project by constructing crest gates during the pendency of this dispute would amount to negativing the substantial claim made by the Government of Mysore". This Government must refute in this connection and would make clear that the crest gates constitute merely a design feature of the Dam calculated to secure utilization of the approved allocation of Krishna waters, and that the so-called second stage of the Project would relate to the extension of the canal systems.

2. I am to add that the Government of Andhra Pradesh are anxious to maintain and promote friendly Inter-State relations and are firmly of the view that a faithful compliance with the provisions of the 1951 Agreement by us all will best ensure them.

Yours faithfully,
Sd/-
(P. Gopal Rao,)
for Chief Secretary to Government.

DOCUMENT MYK No. 103

No. PWD 1 BRA 59 (Part VII)

Mysore Government Secretariat,
Vidhana Soudha,
Dated : Bangalore : 21st June, 1968

From

The Secretary to the Government of Mysore,
Public Works and Electricity Department,

To

The Secretary to the Government of Andhra Pradesh,
P.W.D., Hyderabad.

Sir,

Sub :—Utilisation of Waters of River Krishna.

Ref :—Your letter No. 1565—N1/68--1, dated 25th May 1968.

With reference to your letter cited, I am to state that the contention therein that "The crest gates constitute merely a design feature of the Dam calculated to secure utilization of the approved allocation of Krishna Waters" is not correct and is opposed to facts. It is necessary to emphasise that the crestgates do not form part of the sanctioned Nagarjunasagar Project Stage-I. By the proposed construction of the crestgates the utilisation of the waters by the State of Andhra Pradesh would be far in excess of its legitimate share. There being no approved allocations, reference to the same is misleading.

Further, the reference in your letter to the 1951 agreement is wholly out of place. It has been made very clear how the said so-called agreement is inoperative, un-enforcible, void, and not binding on this State. No reliance therefore can be placed on the same and the question of compliance with its terms does not arise.

I am to request you once again to take immediate action not to proceed with the erection of crest gates which vitally affect the interest of the people of the State of Mysore, particularly in the context of the recent developments in the matter of referring the dispute to the Tribunal.

Yours faithfully,
Sd/-
(Chandappa Patel,)
Secretary to Government,
Public Works and Electricity Department.

PART–X

Correspondence between Government of Mysore and Government of Bombay relating to Koyna and Ajra projects (1953 to 1958).

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DOCUMENT MYK. No. 104

The Koyana Hydro-Electric Project, First Stage

Administrative approval to the Plans and Estimates of—

GOVERNMENT OF BOMBAY

PUBLIC WORKS DEPARTMENT

Resolution No. GKP 1553

Bombay Castle (Bombay No. 1), 20th February 1953.

Government letter, Public Works Department No. 6901/36-El (I), dated the 1st August 1946, addressed to the Special Officer (Electric Grid).

Letter No. Elg. 288/5551, dated the 24th September 1946, from the Special Officer (Electric Grid) to the Government.

Government Resolution, Public Works Department No. 8193/36, dated the 14th December 1946.

Government Resolution, Public Works Department, No. 8193/36, dated the 3rd March 1947.

Government Resolution, Public Works Department, No. 632/48, dated the 11th April 1950.

Government letter, Public Works Department, No. 632/48-El (I), dated the 30th January 1951, addressed to the Electrical Commissioner with the Government of Bombay.

Letter No. Elg. 386/7493, dated the 16th March 1951, from the Chief Engineer, Bombay Electric Grid, to Government.

Government letter, Public Works Department, No. 632/48-K, dated the 24th April 1951, to the Chief Engineer, Bombay Electric Grid.

Letter No. TC-KY. 5 (Vol. IV)/22311, dated the 3rd August 1951, from the Chief Engineer, Bombay Electric Grid, to Government.

Government Letter, Public Works Department, No. 632/48-El (I), dated the 9th October 1950, to the Electric Commissioner with the Government of Bombay.

Letter No. TC. KY-5/30759, dated the 21st December 1950, from the Electrical Commissioner with the Government of Bombay to Government.

Government Letter, Public Works Department, No. GKP. 1551 K, dated the 21st September 1951 and 29th October 1951, addressed to the Chief Engineer, Bombay Electric Grid.

Government Letter, Development Department No. GKP 1551-P.W.D., dated the 16th/17th July 1952 addressed to the Secretary, Planning Commission.

"I am directed to refer to Shri Garg's letter No. BC (V)/49/6-50, dated the 19th/22nd October 1951 and letters of Sardar Man Singh, dated the 4th May 1952 and 13th June 1952, respectively, on the above subject, and to state that, as suggested in Shri Garg's letter, the revised Koyana project on the basis of the allocation of the Krishna waters for diversion to the sea for power generation and the Kakrapara revised scheme with the dam at Ukai or Kakrapara have been examined by the Government of Bombay. After carefully considering the comments of the Engineers of the C.W. & P.C. and of the Engineers of this Government on both these projects, I am directed to observe as follows:

2. The Koyana project as at first elaborated was to generate 6,60,000 kws. of electric energy and to irrigate about 4,40,000 acres of land at an estimated cost of Rs. 92 crores (Rs. 66 crores for power and Rs. 26 crores for irrigation). In view of the difficulty to finance the project to that extent either through the Government of India or the Government of Bombay, as also of the fact that the most of the irrigation to be done ($3\frac{1}{2}$ lakhs acres) was to be by relatively

high lift, which would have involved high cost to the farmers for lifting water for irrigation, this Government decided to restrict the Koyana project for the time being to the generation of electric energy to the extent of the diversion of 67,500 m.c.ft. of the Krishna Valley waters for electric generation purposes ; and for a further storage of water so as to permit flow irrigation of 66,500 acres of land in the Satara District. So far as the generation of electric energy was concerned, it was envisaged at 2,40,000 kws. at 60 per cent load factor in the first stage, the total cost being Rs. 38 crores (inclusive of Rs. 4 crores for flow irrigation in the Sataar District).

Further developments of the Koyana project may be also indicated here, which may be possible in subsequent Five-Year Plans as funds become available. Such future development would be possible in at least two further stages, *viz.*, the second stage and third stage, the present proposal being the first stage of development. "In the second stage, it would be possible with the additional expenditure of Rs. 8·5 crores (on the basis of the estimates worked out in 1951) to put up a fifth generating set of transmission lines to develop 60,000 k. ws. more power, which could be made available in Maharashtra and Karnatak. In the third stage, this project would develop another 1,08,000 k.ws. by additional expenditure on raising the dam and by putting up two more machines and transmission lines. This would also permit irrigation by lift upto 3½ lakh acres of land in the Bijapur District". It may be also indicated here that a further block of 60,000 k. ws. could be generated in the tailrace plant and 30,000 k. ws. seasonal at the foot of the Koyana dam. The total potentiality of the Koyana hydro-power could thus be developed to 4,98,000 k. ws. in course of time.

3. As regards the Kakrapara revised scheme, the C.W. & P. Commission had indicated that it would generate 2,25,000 k. ws. and further irrigate 5,29,000 acres of land (inclusive of one lakh acres of perennial irrigation) over

and above 5½ lakh acres irrigation by the Kakrapara weir, at a cost of Rs. 49.75 crores. In view of the great need of this State in respect of power requirements as also of food-grain production and the high cost of the two schemes, it was considered advisable to select the best part of each of these schemes. The two schemes would have cost of Rs. 87.75 crores. Shri Man Singh has, therefore, suggested in his letter, dated the 13th June 1952, the construction of the Koyana Project as a power project and of the Kakrapara revised project as an irrigation project.

4. This Government has, therefore, given considerable thought with reference to both these projects in their relation to the immediate needs of this State regarding the production of manufactured goods as well as that of food-grains. The need for the generation of additional electric energy for the Bombay-Poona area has become so evident that it is not necessary to dilate upon it here. It is becuase of this need that this Government is arranging with the Tatas for generation of additional 1,00,000 k. ws. of thermal energy to meet this demand until the Koyana project supplies the required energy. The Koyana project is by far the best for the purpose. The generation of electric energy by this project in the first stage, as indicated in paragraph 2 above, would meet the needs of the Bombay-Poona area as well as of other areas indicated therein until 1977. The needs of irrigation are also no less urgent for this State, which is the most deficit province in the whole country in the matter of food-grain production. The purchase and transport of food-grains required to make up the deficit throws considerable strain on the resources of the State, besides involving expenditure on a costly administrative machinery for the distribution of food-grains.

5. Shri Man Singh has in his said letter, dated 13th June 1952, recommended the possible construction of an earthen dam for the Koyna project in preference to the concrete alternative with a view to reduce the cost of con-

struction. This Government is not in favour of an earthen dam at Koyna and has communicated its decision as per PWD letter No. GKP 1552 K, dated 10th July 1952, addressed to Shri Man Singh. A copy of it is enclosed herewith for ready reference. Since the Koyna project is an unrivalled power project, located as it is in Maharashtra, the Government of Bombay desires that the supply of power to the industrial centres of Karad, Ogalewadi, Kirloskarwadi and Sangli should be made available to the extent of 10,000 k.ws. in the first instance. The additional cost involved would be Rs. 1 crore for such extension. This would not affect in any material way the power needs of the Bombay-Poona area. It is also intended to take up flow irrigation from these waters to the extent of about 40 to 50 thousand acres in North Satara District. The total cost for the Koyna Project with the concrete dam and power supply alone to the Bombay-Poona area and the four producing centres in Maharashtra referred to above, would thus come to Rs. 33 crores, which this Government hopes the Planning Commission would approve as meeting the needs of power supply of Bombay-Poona and other Maharashtra areas of this State.

6. As regards the Kakrapara revised project, it would make irrigation available in almost 11 lakh acres of land (5½ lakh acres due to Kakrapara weir and 5.29 lakh additional acres due to the revised project), inclusive of one lakh acres of perennial irrigation, leading to the additional production of over 3 lakh tons of food-grains. This complete project would thus reduce the food-grains deficit of this State by about one-third which is not an immaterial gain to the State to meet its deficit in food-grains production. It would also be on material benefit to the country as a whole by relieving to that extent foreign exchange which would have been otherwise required to purchase and transport this much quantity of food-grains the cash value of so much food-grains production amounting to Rs. 10½ crores at an average rate of Rs. 350 per ton.

7. The Kakrapara revised project is estimated by the C.W and P. Commission to cost Rs. 23 crores. While the water-rates and irrigation cess to be charged on the basis of rates now introduced in the State will meet in full its working expenses and interest charges, there would be a further capital realization in form of Betterment Levy. This would come to Rs. 22 crores on 11 lakh of acres at an average rate of Rs. 200 per acre. Under the Bombay Act No. LIX of 1950, the realizations from such Betterment Levy would be utilised for taking up irrigation works elsewhere in the State. As regards the other economic aspects of the Kakrapara revised project, it may be mentioned that the construction of dam is so planned that it would permit, by raising the dam to a sufficient height the generation of 2,25,000 k.ws. of hydro-electric energy to meet the needs of Gujarat, as and when the funds permit. The irrigation part of the project, *viz.*, the Kakrapara Weir (costing Rs. 6¼ crores) and the revised project (costing Rs. 23 crores) would enable the irrigation of almost 11 lakhs of acres of land at a cost of about Rs. 265 per acre, which is one of the cheapest irrigation projects in the country. This project would also permit a rapid reclamation of an additional 50,000 acres of Khar lands in the Surat District and thus further help food-grains production. The revised scheme would enable the production of additional agricultural produce of the annual value of Rs. 30.70 crores, as per Appendix No. 1. The value of the agricultural produce of the same area under the present condition being Rs. 9.75 crores, as per Appendix No. 2.

Lastly, this project would, to a certain extent, help towards protection against floods which every now and then ravage the towns and villages as well as fields situated on either bank of the Tapi River.

8. As stated above, the immediate needs of this State, which is industrially a highly developed one, are power required for removing the present deficit as also for further production of manufactured goods needed for the country

as a whole and irrigation for the production of food-grains in which this State is particularly deficient (*i.e.*, to the extent of about 20 per cent of its food-grain requirement in a normal year). This Government, therefore, hopes that the Planning Commission would be agreeable to include the Koyna and Kakrapara revised projects in the First Five-Year Plan at a cost of Rs. 56 crores in all. The Government of India have given substantial assistance for the development of various irrigation and power projects in other parts of the country such as the Bhakra and Nangal Projects in East Punjab, the Damodar Valley Project for Bihar and Bengal, and the Hirakud Project in Orissa. While this Government welcomes the construction of these large projects with the help of the funds provided by the Centre, it hopes that the comparatively much smaller amount, *viz.*, Rs. 56 crores, asked for by this Government for the Koyna and the Kakrapara revised projects, which are in no way inferior in their possibilities to the other projects referred to above, would be available for the industrial and agricultural development of this State. Both these projects have the merit that the Kakrapara revised project would begin to yield result in four years' time so far as food-grain production is concerned and perhaps a little earlier in the way of perennial irrigation; and the Koyna project would begin to provide power in six years' time. Both these projects have taken a long time in development; the Kakrapara project having been taken up by the C. W. I. N. C. in 1946 and the Koyna Project by the Bombay Electric Grid in 1947, so that their plans and estimates have by now been made and subsequently scrutinized with the greater precision to avoid any large-scale subsequent increase in cost in future. They are also so planned that their further development to higher targets could be carried out later on without any difficulty in the case of each of them to meet the future requirements of the State, according as funds may be available from time to time, and the need for such further development arises in each case."

Letter No. TC. KY. 5/35080, dated the 15th November 1952, from the Chief Engineer, Bombay Electric Grid, to Government.

Government Letter, Public Works Department, No. GKP. 1552 K, dated the 3rd December 1952.

Letter No. TC. KY. 5, dated the 6th December, 1952, from the Chief Engineer, Bombay Electric Grid, to Government.

Government Letter, Public Works Department, No. GKP. 1552 K, dated the 23rd December 1952, to the Chief Engineer, Bombay Electric Grid.

Letter No. TC. KY. 5/335, dated the 24th December 1952, from the Chief Engineer, Bombay Electric Grid, to Government.

"Reference: Government PWD (Confidential) letter No. GKP 1552, dated the 3rd December 1952.

As desired in the abovementioned reference, I forward herewith :

I Report,

II Drawings,

for the Koyna Hydro-Electric Project, first stage, as now envisaged, *viz.*, a storage sufficient for generation of 240,000 K.W., at 60 per cent load factor with the project installations to suit.

As stated in my letter No. TC. KY. 5/35080 of 15th November 1952 the present proposal is a truncation of the January 1952 proposal by the reduction of water storage for one machine (60,000 K.W.) and 8,000 m.c.ft. of irrigation supplies. The additional feature is a small transmission system up to Miraj.

2. The cost of this present Project works out to Rs. 3,321.57 lakhs, as detailed in the estimates included in this Report; this amount is less than

the cost of the January 1952 proposal by about Rs. 51 lakhs. The reduction is mainly due to—

		(Rs. in lakhs)
(i) cost of land acquisition owing to the lowered reservoir level	....	17.00
(ii) cost of dam due to lesser height	...	32.40
(iii) buildings due to reduction in the scope of work	....	23.00
(iv) Miscellaneous items—		
(*a*) cost of improvements to the Karad-Chiplun road to be done by the P.W.D.	....	35.00
(*b*) omission of landing ground as not required	....	5.00
(*c*) water-supply and drainage for reduction in scope.	....	7.00
(*d*) rehabilitation due to reduced submergence	....	3.00
(*e*) other reductions	....	4.00
(v) maintenance (being a percentage of works)	....	9.00
Total	....	135.40

The cost of the additional transmission system to Miraj *via* Karad and Sangli is estimated at about Rs. 90.00 lakhs. Thus, the total savings in works' costs amount to about Rs. 45.0 lakhs, which with the centages, totals to about Rs. 51 lakhs.

3. The Koyna Project site has been visited by various Engineers, foreign and of the C. W. P. C., from time to time. But only on three occasions, were experts specifically called upon for advice, *viz.*, Dr. Savage in January 1949, Dr. Nickell (Geologist) in April 1949 and the Experts' Committee in February 1951.

Dr. Savage was impressed by "the whole Koyna project as an unusually attractive project" and stated, "it is my opinion that the straight gravity dam is a desirable alternative and in fact the preferable type of dam", and also that, "consideration should be given to the all concrete dam and the all embankment type dam but I do not favour the so-called composite dam". He also suggested a tentative foundation line and regarding some drill holes recommended that "these should be deepened not less than 50 to 75 feet into sound rock".

Dr. Nickell examined the site exhaustively and gave a geological report which is printed as Appendix III to the Koyna Project Report of June 1950.

The advice of these two experts was fully considered, further data obtained and the various alternative studies made before submitting the June 1950 Report.

4. By its letter, Public Works Department, No. 632/48-El (I) of 9th October 1950, Government desired stage development of the project and suggested the first stage for the installation of three generating sets of 60,000 KW. each. This letter was exhaustively replied to in this office letter No. TC. KY 5/30759 of 21st December 1950. Finally, the first stage was fixed at storage enough for 5 effective machines and 8,000 m.c.ft. for irrigation and the final stage for a diversion of 67,500 m.c.ft. net for power generation and 30,000 m.c. ft. with the needed carry-over for irrigation, *vide* please Government, Public Works Department, letters Nos. GKP. 1551K of 21st September 1951 and 29th October 1951.

The restriction on the quantum of water for power generation was the result of an inter-state Conference, regarding the distribution of the Krishna waters between Bombay, Madras, Mysore and Hyderabad held in July, 1951 under the aegis of the Planning Commission.

5. Alternative studies were made regarding the types of dam and power house. The decision regarding the most suitable type of each was of such great importance that it was decided to obtain expert advice. At the instance of this department, therefore, a committee of experts (referred to in paragraph 3 ante) was approved by Govt. in their letter No. PWD. 632/48-El (I) of 30th January 1951. Specific advice of the Committee was sought on the following points :

(i) the feasibility and desirability of stage development

(ii) the most suitable type of dam,

(iii) the most suitable type of power house.

Advice on a large number of other design features was also obtained by submitting a questionnaire to the Committee.

The Committee consisted of well known Engineers, under the Chairmanship of Shri A. N. Khosla and included Dr. Savage of U. S. A., Mr. Kristen Fris of Norway, Mr. J. Simonetta of France, Dr. C. Marcello of Italy, Shri Kanwar Sain of Central Water and Power Commission and Shri Champhekar, Chief Engineer, Bombay Public Works Department.

The Committee visited the site, held prolonged discussions, and advised stage construction a first stage dam cement concrete (whether the future raising should be done in concrete, masonry, hollow concrete or rockfill to be considered later) and an underground type of power house; the Report containing the data presented to and the recommendations made by this Committee has already been submitted to Government.

The suggestions and recommendations of this Committee were considered fully, further studies made and an exhaustive report for the first stage of the Project submitted to Government in January 1952.

6. The Government of Bombay had recommended to the Planning Commission, the inclusion of Koyna as a priority project. On further consideration, the Government decided towards the middle of the current year that the first stage of the Koyna Project should be for power generation of 240,000 KW. only bulk of which is to be transmitted to Bombay and a small fraction, *viz.*, 10,000 KW. is to be distributed in the adjoining Karad-Miraj area; irrigation is to be included in the second stage only. Thus the variation from the January 1952 proposal is the reduction of water storage for one machine and 8,000 m.c.ft. for irrigation and the addition of a transmission system up to Miraj.

The present, therefore, is, in effect, the January 1952 scheme recast to comply with the above requirements.

7. (*a*) Copies of the 1950 and 1952 Projects were supplied to the CWINC and the Central Electricity Commission (since merged in the former). Their remarks on the 1950 Report were received through the Ministry of Natural Resources and Scientific Research. Both the authorities considered the Koyna Project as economically a very attractive proposition fit to be undertaken immediately to meet the awaiting demand.

The C.W.I.N.C. stated that "both technically and financially the Koyna Project is feasible (hydro-electric part)". The C.E.C. made some technical remarks which were considered at the time of finalising the January 1952 Report.

The Experts' Committee (*vide* paragraph 5 ante) carefully examined the Civil Engineering design aspects of the project and, specially, the points about which there was any doubt or indefiniteness before making recommendations. The designs made in January 1952, now closely follow the advice of this Experts' Committee. Shri A. N. Khosla, the Chairman of the C.W.P.C.

presided over this Committee, and Shri Kanwar Sain, Member (designs) of the C.W.P.C. was an active member. As regards the electrical works, it is further proposed to deal with some alternatives by inviting alternative tenders and assessing the relative merits and costs at the time of placing orders.

(*b*) Some technical comments on the January 1952 Report were received from Dr. K. L. Rao of the C.W.P.C., and were dealt with in this office D.O. letter No. TC.KY.5/5291 of 21st February 1952, addressed to Sardar Man Singh, copy endorsed to you.

After further study of these points, it has been decided to construct the spillway of the dam to its full width in the first stage itself; other points already dealt with in the D.O. referred to above, do not affect the designs.

(*c*) The role of the C. W. P. C. has, so far, been understood to be as generally advisory in a broad sense for the suitability schemes recommended by the States to the Centre and an overall view regarding their technical feasibility. This, as shown above, has been done by them and they have considered the scheme technically and economically feasible and recommend it as one of priorities.

No specific remarks regarding the estimates have been received from the C. W. P. C. presumably the assessment made by them covers the same.

(*d*) The designs prepared by us included storage for irrigation water and thus pertained only to the dam the details of water distribution have been separately worked out by the Public Works Department.

As regards the dam, Shri Champekar was a member of the Experts' Committee whose unanimous advice regarding the dam (and other elements of the project) has been followed in our designs.

(e) We have, thus, taken expert advice on all important items and have taken into account remarks and suggestions of the C. W. P. C., the C. E. C. and other engineers while proposing our final designs, which are considered suitable and adequate.

8. The Koyna Project has been included in the present Five-Year Plan and a start on the preliminaries like the roads, colonies, water-supply, etc., must be made as soon as possible so that the scheme may be completed and supply power to Bombay at a very early date and save avoidable capital expenditure on additional steam plant.

It is, therefore, urged that very early administrative approval be now accorded to this scheme to enable a start being made as soon as funds can be granted. An abstract of costs is enclosed for ready reference."

RESOLUTION :—Government is pleased to accord administrative approval to the plans and estimates the latter amounting to Rs. 33,21,57,000 for the Koyna Hydro-electric Project, First stage.

2. No expenditure on the execution of the Project should be incurred till orders regarding financing the Project are issued by Government.

By Order and in the name of the Governor of Bombay,

M. S. CHAKRAVARTI,
Deputy Secretary to Government.

G.R., No. GKP 1553, P.W.D., dated the 20th February 1953.

To

The Finance Department,

The Development Department,

The Revenue Department,

The Chief Engineer, Bombay Electric Grid,

The Chief Engineer, Public Works Department (Irrigation)

The Chief Engineer, Public Works Department (Roads and Buildings)

The Electrical Engineer to Government.

The Collectors of Districts.

The Superintending Engineers of Circles,

The Accountant General, Bombay.

Class "A" No. of 1953.

Copy forwarded for information and guidance to

DOCUMENT MYK. No. 105.

Ghataprabha Valley Development Scheme Stage II—Ghataprabha Left Bank Canal Section 2—miles 45—73 Administrative approval to the—

GOVERNMENT OF BOMBAY

PUBLIC WORKS DEPARTMENT

Resolution No. MIP-1154, Bombay

Castle (Bombay No. 1), 9th May 1955.

READ :

Letter No. B.M./GVD, dated the 13th December 1954, of the Superintending Engineer, Karnatak Irrigation Circle.

Ref.—My D.O. Letter No. M.I. 1, dated the 7th December 1954.

I have to submit herewith a project for the work constructing the second section of the Ghataprabha Left Bank Canal—miles 45 to 73—estimated to cost Rs. 4,98,59,196—on the basis of the present day rates, for administrative approval and technical sanction and state as follows :—

The entire Ghataprabha Valley Development scheme envisages two storages higher up in the valley—one at Hadalga and the other at Ajra—and two canals, one on the Left Bank and the other on the Right Bank of the Ghataprabha River.

The whole scheme has been phased into three stages.

They are :—

First Stage :

The Ghataprabha Left Bank Canal—first section—Miles 0 to 44.

Second Stage :

(*a*) A storage at Hadalga on the Ghataprabha River ;

(*b*) The Ghataprabha Left Bank Canal-- Second Section—Miles 45 to 73.

Third Stage :

(*a*) Another storage at Ajra on the Hiranyakeshi River, a tributary to Ghataprabha River ;

(*b*) The Ghataprabha Right Bank Canal.

The construction of the Ghataprabha Left Bank Canal—First Section, miles 0-44—which forms the first stage of the Ghataprabha Valley Development Scheme, has been sanctioned and is now in progress since 1949. This project is included in the First Five-Year Plan and is scheduled to be completed by June 1956.

5. The second and third stages of the Ghataprabha Valley Development Scheme are proposed for inclusion in the Second Five-Year Plan.

As stated in paragraph 3 thereof, the second stage of the scheme comprised of a storage at Hadalga and the extension of the Ghataprabha Left Bank Canal upto 73 miles. With the storage of 32,500 M. Cft. at Hadalga, it will be possible to work the whole canal from 0 to 73 miles, as an eight months canal. A project for the Hadalga Storage dam has been prepared and is being submitted to Government separately for administrative approval.

6. The Ghataprabha Left Bank Canal takes off from the existing masonry weir at Dhupdal. The entire Ghataprapha Left Bank Canal—miles 0 to 73—was projected in 1924 by Mr. T. A. Andrew, the Executive Engineer on special duty. It was then designed for a capacity of 1,500 cusecs at the head. The very project is now proposed to be taken up for construction with the following modifications :

(i) Revising the estimate to suit the present day rates.

(ii) Increasing the canal capacity from 1,500 cusecs to 2,000 cusecs, in order to fully utilise the monsoon river flow and the storage for irrigating seasonal and two seasonal crop.

7. The first section (miles 0 to 44) of the Ghataprabha Left Bank Canal which is now in progress, is being constructed at present for a capacity of 1,500 cusecs as projected in 1924. But, its construction has been so arranged as to admit the canal banks to accommodate the ultimate capacity of 2000 cusecs. Excepting the first 8 culverts in the length from miles—all the masonry works in the first section of the canal are re-designed for the ultimate increased capacity of the canal and are being executed accordingly. The provision for increasing the canal capacity in the first 44 miles of canal as also the capacity of the first 8 culverts has now been made in the project for the second section of the Ghataprabha Left Bank Canal (miles 45 to 73) now submitted to Government.

8. The project for the second section of the canal (miles 45 to 73) now submitted is according to the project of 1924.) The only alterations in the project now proposed are :

(i) Provision for earthwork to increase the canal capacity to suit the head discharge of 2,000 cusecs ;

(ii) Provision for additional cost involved in constructing the masonry works to suit the increased capacity ;

(iii) Provision for additional minor items of works not provided for in the 1924 project.

A separate sub-estimate for the above provisions together with a brief note thereon is enclosed in the project papers now submitted.

9. The general description accompanying the project explains the scope and necessity of the scheme and gives also, in brief, the board details and

assumptions made in the design of canal and structures. It may be mentioned that the type designs of masonry works included in the present project are the same as those of 1924 project and these were also adopted in the First Section of Canal, a project for which is sanctioned by Government and which is now under construction. However, at the time of execution of this project, detailed working plans and estimates of all masonry works to suit the ultimate canal capacity of 2,000 cusecs at the head will be prepared and got sanctioned by the competent authority as was done in the case of Section I.

10. The whole canal of 73 miles commands a culturable area of 4·458 lakh acres of which 2·579 lakh acres will be under the command of the First 44 miles. This canal passes through the arid and famine striken area of Belgaum and Bijapur Districts. The culturable command in the respective Districts are (i) 1·814 lakh acres in the Belgaum District and (ii) 2·644 lakh acres in the Bijapur District.

Since this canal is primarily intended to serve as a 'Food and Fodder' scheme, the annual irrigation on the whole canal of 73 miles will be as follows, according to the crop pattern that will be adopted :—

(*a*) Seasonal crop pattern (with two seasonals),

Area irrigated.	2·5 lakh acres.
Crop pattern :	40% Kharif seasonals.
	40% Rabi Seasonals.
	20% Two seasonals.

Or

(*b*) Seasonal crop pattern (without two seasonals),

Area irrigated.	3.25 lakh acres.
Crop pattern :	50% Kharif seasonals.
	50% Rabi seasonals.

The statistical information in the general description of this project gives the benefits likely to be derived by the execution of the second stage of the Ghataprabha Valley Development Seheme.

11. The second stage of the Ghataprabha Valley Development Scheme is of vital importance and urgent as it serves a very large area in the famine tract for which there is no other means of protection. The execution of this canal extension project as well as the construction of the Hadalga Storage will indeed be a great boon to the agriculturists who form a bulk of the population of this area, in that it will enable the agriculture to be stabilised and will also provide sufficient work to the people who are at present under- employed.

12. This extension of canal forms part of the Second stage of the Ghataprabha Valley Development which is proposed for inclusion in the Second Five-Year Plan as stated herein before. The first section of the canal, now under construction, will be completed in June 1956. If this project for the canal extension is sanctioned early, it would be possible to switch the present construction organisation and equipment on to the construction of this project straightway. In the circumstances, it is requested that Government may, in your concurrence, kindly be moved to accord administrative approval and technical sanction to the project at a very early date ".

RESOLUTION: Administrative approval is accorded to the plans and estimates the latter amounting to Rs. 4,98,59,196 in respect of the work of constructing the 2nd section of the Ghataprabha Left Bank Canal miles 45 to 73.

2. The charge is debitable to the head "68-construction of irrigation, etc. (2) Unproduetive 1 Works". The Superintending Engineer, Karnatak Irrigation Circle, should propose the work as a new item for the year 1956-57 under that head.

3. The Superintending Engineer, Karnatak Irrigation Circle should submit the project for technical sanction after complying with the technical remarks contained in the accompanying printed accompaniment to this G. R. note.

By order and in the name of the Governor of Bombay,

Sd.
(K. V. Nevagi,)
Assistant Secretary to the Government of
Bombay, Public Works Department.

To

x x x x x x x x x

The Executive Engineer, Irrigation Projects Division (South)
Dharwar, Dharwar.

DOCUMENT MYK No. 106

Copy of Confidential Letter No. GKP-6558-N dated 14th May 1958 from the Secretary to the Government of Bombay, Public Works Department, to the Chief Secretary to the Government of Mysore, Bangalore.

Sub : Koyna—Irrigation facilities from—to areas in Mysore State

The Koyna Project is divided into three stages. The first stage which was sanctioned by the Bombay Government provides for the construction of the dam to store 36,000 m. cft. and installation of 240,000 k.ws. in the power house. The second stage provides for the raising of the dam for the ultimate storage of 98,780 m. cft. with 4,08,000 k. ws. installed. Out of this storage, 57,000 m. cft. are allocated for power generation and would be diverted to the West, while the balance of 41,780 m. cft. including losses and a carry-over of 10,000 m. cft. is available for irrigation purposes. 98,780 m.cft. is the optimum storage that can be impounded. The third stage provides for further development of power on the tail race and seasonal power at the dam.

2. Due to the growing need for additional power which has substantially exceeded earlier estimates, this Government has decided to build the dam to the *ultimate thickness*, though the height will be restricted for the present to the crest of stage I, since it is anticipated that Stage II will have to be taken up in continuation of stage I.

Of the 41.780 m.cft. available for irrigation purposes out of the ultimate possible storage of 98,780 m.cft. it is envisaged that for the areas now remaining in Bombay State a storage of 16,250 m. cft. approximately will be required for purposes of flow irrigation. As lift irrigation is expensive and there are other schemes in this State in the Krishna basin for flow irrigation this Government has no intention of utilising Koyna water for lift irrigation within its State limits, at least in the proximate future. Hence if its own

requirements were alone to be considered this Government would plan the final Koyna dam to store 73,250, m.c. ft. only and, therefore, the thickness of the first stage at present under construction would be built as for this ultimate storage.

3. When the Koyna project was prepared, the Bijapur district was a part of the Bombay State and the Bombay Government had considered various sources for providing wide irrigation facilities to the lands in this district which is liable to be frequently visited by famines and had come to the conclusion that only lift irrigation could be provided. Koyna water is one such source for providing lift irrigation to the Bijapur District and an allocation up to 25,530 m.c. ft. inclusive of losses and carry-over (*i.e.*, 98,780 m.c. ft. *minus* 73, 250 m.c. ft.) could be made for the purpose. If water is to be provided in the Koyna storage for irrigation in the Mysore State, this Government would naturally expect the Mysore Government to meet the cost of that part of the storage allocable to Mysore and the Mysore Government would have to make the necessary provisions for its share of the cost during the current Plan for the first stage height and for the approximate storage undertaken subsequently probably during the Third Plan period.

4. The excavation for the foundation of the Koyna Dam has been made for the full width of the dam required for the ultimate storage of 98,780 m.c.ft. and even if the dam is now constructed for 73,250 m.c.ft. for the power and irrigation requirement of the Bombay State, it would be possible to thicken the section subsequently for providing additional storage for irrigation in the Mysore State. However, for obvious reasons, the cost of additing this thickness later would be much higher than what it would be if the dam is built to hold that additional storage from the very commencement. Besides, technical considerations impose a certain interval of time before such

a thickening of the dam could be undertaken after the first construction. It is these considerations that make it necessary to obtain immediately the opinion of the Mysore Government as to whether they desire to have any further storage made available at Koyna for irrigation in their territories and would pay their appropriate share of the cost for it.

The concreting of the dam has already commenced and it is therefore, necessary that the decision of the Mysore Government in this matter should be communicated to the Bombay Government as soon as possible and in any case not later than the end of August 1958, since the concreting operation would be resumed in full swing as soon as the monsoon is over and the necessary designs will have to be finalised by that time.

5. I am to state that if the Government of Mysore would like preliminary discussion at the administrative and/or technical level with a view to facilitating a decision on this issue being taken by the Government of Mysore, the Government of Bombay's corresponding Officers will be very glad to meet the Officers of the Mysore Government.

I would be very grateful for a very early reply.

DOCUMENT MYK. No. 107

Copy of Letter No. PWD 38 IRI 58 dated 20th October 1958 from the Secretary to the Govt. of Mysore, Public Works Department, addressed to the Secretary to the Government of Bombay, Public Works Department, Bombay.

Sub: Irrigation facilities from the Koyna Project to areas in the Mysore State.

I am directed to invite reference to the correspondence ending with letter No. GKP 6588-I. N. dated 18th July of the Special Officer, Public Works Department, Bombay, on the above mentioned subject. A meeting of the Chief Engineers of the two States has since taken place at Bombay on the 30th July 1958, and it is believed that the finalised minutes of the meeting are now available to the Government of Bombay.

2. I am to recall in this connection that copies of the certain reports pertaining to Koyna Project were asked for from the Government of Bombay sometime ago and have not so far been furnished. In the absence of these reports this Government have had to express their views as indicated below on the best available information.

3. As stated in your letter, it was originally proposed to store 98,780 M. Cft. of water in Koyna, of which only 57,000 M. Cft. would be for power, and the balance for irrigation. This Government understands that this water allocated to irrigation was intended to be utilised only in Bijapur District of present Mysore State to irrigate some 4.4 lakh acres and not in any other area. It would also appear that in subsequent reports pertaining to Koyna Project, this position, namely, that the storage in Koyna Reservoir for irrigation purposes would be for use only in Bijapur District was confirmed. While the actual storage for purposes of irrigation would be only 41 T.M. Cft. the actual quantity of water that was proposed to be utilised

for the said purpose is 46 T.M. Cft. out of an estimated 58 T.M. Cft. which is the irrigation component of the allocation of Krishna Waters for former Bombay State for Koyna Project under the Planning Commission award of 1951 (being 55 per cent of the total requirements for power generation). It is only the balance of 12 T.M. Cft. that is to say, the difference between the total irrigation component of Koyna allocation and the share out of it which was meant for irrigation in Bijapur that may be deemed to be allocable between the States of Bombay and Mysore (as reorganised) for the purpose of irrigation.

4. In the circumstances it is not clear how it has been stated in your letter of 14th May 1958 and by the Chief Engineers of Bombay in subsequent discussions that a storage of 16.25 T.M. Cft. in Koyna would have to be earmarked for irrigation in the present Bombay State, and that only the balance 25 T.M.C. ft. would be available for irrigation in Mysore area. This Government would wish to point out that the irrigation storage originally contemplated in Koyna Reservoir should be available for utilisation in Mysore State alone and that this quantity of water, whether stored in Koyna or not would have to come from Koyna or Krishna as the case may be.

It is understood that the Chief Engineers of Bombay stated during the discussions held at Bombay that out of the total storage in Koyna from year to year, whatever is required for power would be abstracted—first in lean years and only the balance made available for irrigation. It is obvious that such an arrangement would be highly inequitable; any short-fall in the flow of or storage in any particular year will have to be apportioned suitably between the requirements of power and irrigation.

5. This Government have considered the question of utilisation of the Mysore share in Koyna waters on the abovementioned basis. The immediate question for consideration is whether the storage in Koyna has to be raised in order to meet the irrigation needs of Mysore. It is found that the Lift Irrigation Scheme which was originally contemplated has to be investigated further before a decision is taken as to whether and in what manner it may be implemented. Since the Government of Bombay are anxious to proceed with the work on Koyna Dam, this Government would not wish to come in the way of that work being proceeded with and would not ask at the present time for any storage in Koyna Reservoir for irrigation purposes in Mysore State, provided that the storage in Koyna is so fixed that it will be possible for Mysore to utilise its share of Koyna waters in Mysore territory. They, therefore, reserve their right to the utilisation of Koyna waters to the extent of 46 T. M. C. Ft. for the purpose of irrigation in Mysore State and to an additional share in the balance of 12 T.M.C. Ft. which is estimated to be available. This Government will consider in due course how and in what manner this quantity of water that falls to their share would be utilised.

6. I am to mention in this connection that the question of supplying power from Koyna Project for irrigation in Bijapur District was also discussed at the Conference of Chief Engineers. It appears to have been stated on behalf of Bombay that no power would be available from Koyna Project for any place outside the Bombay State in view of the heavy demands for power supply within that State and that in any event the rate at which power supply for Lift Irrigation as originally contemplated, namely, 0·1 anna per unit, would be lower than the rate at which power could be supplied from the Project at the present time. This Government would urge that although the sanctioned Koyna Project (1st stage) does not appear to provide for any power supply outside the present Bombay State, the Government of Bombay

may kindly consider the question of supplying such quantity of power as is possible out of the first stage in view of the acute shortage of power in Mysore at present. In any case, since power supply from Koyna for Lift Irrigation purposes in Bijapur was contemplated, the supply of such power from the Project in the Second stage in such quantity as may be agreed on between the two State Governments may be made, subject to agreement also about rates. I am to suggest that discussions between the Chief Engineers (Electricity) of the two States may be intimated in this behalf as early as possible".

PART XI

Correspondence relating to the Vijayawada Speech of the Member, Central Water and Power Commission (1961).

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DOCUMENT MYK No. 108

H. K. VEERANNA GOWDH,
Minister for Public Works
and Electricity.

Mysore Government Secretariat,
Vidhana Soudha,
Bangalore, dated, 29th May 1961.

Sub : Allocation of Krishna and Godavari Waters.

My Dear Hafiz Saheb,

I am enclosing herewith a copy of Press Report from "Indian Express" (Vijayawada Edition) dated 28th February 1961 (*vide* Annexure I). According to this news item, Dr. K. L. Rao, Member of the Central Water and Power Commission (Ministry of Irrigation and Power) is reported to have made a number of assertions which are patently fallacious and are meant to mislead the public into the wrong belief that the 1951 allocations are in order and whatever Andhra Pradesh is actually planning or doing is the only possible course to take. It looks pretty evident that all the statements of the Member, C.W.P.C. are motivated by the intention of pushing through the present Nagarjunasagar Project planned on Krishna Waters at the cost of Upper States and the Pochampad Project on Godavari at the cost of Marathawada in Maharashtra and Bidar District of Mysore, while conserving all the remaining Godavari waters safely for Andhra for further Projects.

2. If such statements were made by public leaders in Andhra Pradesh, I would not have been surprised. But, in this case since these statements have come from a very responsible Central Government Officer, *i.e.*, a Member of the C.W.P.C., I cannot but view the matter with due seriousness, especially when the very question of Krishna and Godavari Waters' distribution is engaging the attention of all the State Government and the Centre alike and the matter is practically subjudice. Here is a case where a Member of the C.W.P.C. has expressed opinions which are entirely in favour of Andhra Pradesh's getting an unduly large share of waters. Since he is a member of

the C.W.P.C. the opinions expressed must be taken as the opinion of the C.W.P.C. which happen to be the highest technical body in existence to advise the Government of India. You will agree with me, Sir, that such a body should be impartial in the assessment of the requirements of the waters for the various States and hence the C.W.P.C. has to examine the whole question with reference to the data and other principles put forward by Mysore and Maharashtra Governments, with such views already biased in favour of Andhra Pradesh, I feel extremely diffident to expect that the whole question would be examined without any bias.

3. Under the circumstances I hope you would take appropriate action so as to allay our fears regarding the C.W.P.C.'s impartial handling of such matters.

Yours sincerely,
Sd/-
(H. K. VEERANNA GOWDH)

Shri Hafiz Mohammad Ibrahim,
Minister for Irrigation and Power,
Government of India, New Delhi.

DOCUMENT MYK No. 109

Extract from "The Indian Express" of Tuesday the 28th February 1961.

NO GODAVARI WATER FOR THE SOUTH

TECHNICAL DIFFICULTIES IN WAY OF DIVERSION

(By our Staff Reporter) Vijayawada, February 27.

The diversion of Godavari waters to the South was ruled out on technical grounds by Dr. K. L. Rao, a member of the Central Water and Power Commission today.

Addressing the local Bar Association, Dr. Rao, said that the course of the Godavari was such that there would be no water available to be diverted at Pochampad though the level was sufficiently high. At Ichampalli and Polavaram, water would be available in abundance but the level was not high enough to facilitate diversion. Thus, the problem was one of levels and this would make it difficult for any diversion of the water to the South. Otherwise, the river had such an abundance of water as to be carried even up to Kanyakumari. It was not for want of our good intentions either.

Referring to the Pochampadu Project, Dr. Rao, said that it was bound to materialise and when once it was put into execution it would command extensive areas in Telangana.

Referring to the question of diversion of the Krishna waters between Maharashtra, Mysore and the Andhra Pradesh, Dr. Rao said that by harnessing the river wealth the State would be in a position to make the country self-sufficient in rice and thus help minimise rice imports. The contention by the Maharashtra and Mysore Governments that they would require larger allocation of Krishna waters for power production was untenable because power could nowadays be generated either by means of

nuclear energy or diesel oil, but water should be used to the maximum for food production. He felt that a demand for slight readjustment of the 1951 agreement in the light of re-organisation of the States might be justified.

1951 AGREEMENT

Explaining the 1951 agreement on river waters, Dr. Rao, said that the surplus water of Krishna river was estimated to be 1,000 units, of which 150 units were given to Maharashtra, 250 to Mysore and 650 to Andhra State. He hoped for a day when scientists and engineers would plan to divert water, which was being washed down to the Arabian sea unutilised, so as to enable the rainshadow belt of the Krishna and Godavari basin to use it. Till then the water supply in the Krishna would be limited. While Maharashtra and Mysore did not have extensive areas to command for agricultural production, Nagarjuna Sagar alone had a potential for 100 lakh acres to be brought under cultivation, provided sufficient water was let into it.

Dr. Rao advocated the principle of giving priority to use river waters for food production. Andhra Pradesh had fertile soil, decomposition of the rock and trained agriculturists and these would entitle the State for its present allocation. He recalled how Maharashtra scholars opposed the Koyna Hydro-Electric Project on grounds of economic exploitation of waters and defilement of the "sampriti sangam" of the Koyna and the Krishna.

Dr. Rao remarked that allocation of river waters should be made not on the principle of optimum utilisation but on the principle of full agreement of all parties. This could be attained with proper understanding of facts, he added.

Dr. Rao wanted a change in our reverence for rivers. The nation should exploit potentialities of river wealth to the full, as the Westerners did.

He regretted that of the 2,000 units of power produced in the world, India produced only 13 to 14 units while U.S.A. and U.S.S.R. shared between them half of the total production. He mentioned that Russia which was producing only one unit 40 years ago now came to occupy the second place. In respect of power production and industrial goods, Andhra State was lagging far behind several other countries and States. He pointed that even though the Government had been doing its best within its scope so far it could not touch even the fringe of the problem.

Mr. B. Hanumantharao, Vice-President of the Association, introduced the Speaker and Mr. A. Raghupatirao proposed a vote of thanks.

DOCUMENT MYK No. 110

D.W. II-1(14)/60
Minister for Irrigation & Power,
India.
New Delhi, June 22, 1961.

My dear Veeranna Gowdh,

Kindly refer to your D. O. letter dated the 29th of May 1961 regarding allocation of Krishna and Godavari waters. My attention was drawn to this press report earlier by Shri Chavan, Chief Minister, Maharashtra, and we had called for a report from Dr. K. L. Rao. Dr. Rao explained that he did not express any opinion on any controversial issues. He simply stated briefly the viewpoints of the various States as given in the published reports and expressed the hope that ultimately the river will bring happiness to all the inhabitants of the basin. Any how, we were ourselves unhappy about the statements said to have been made by him and we told him so. It did appear, however, that Dr. Rao had not been correctly reported. In the circumstances I trust you will let the matter rest at that.

With kind regards,

Yours sincerely,
Sd/-
(HAFIZ MOHD. IBRAHIM)

Shri H. K. Veeranna Gowdh,
Minister for Public Works &
Electricity,
Govt. of Mysore, Bangalore.

PART XII

Miscellaneous Correspondence

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DOCUMENT MYK. No. 111

Supplement to 1944 Agreement executed in December 1945 by the representatives of Governments of Hyderabad, Mysore, Madras, and India.

A. Mysore may proceed with the construction of the Sacrebyle anicut on the Tunga river subject to the condition that pending the construction of the Tungabhadra Dam. Mysore shall not extract supplies from the Tunga at the Sacrebyle anicut during low flow period when such extraction is likely to adversely affect the existing Pre-Moghul irrigation. To ensure that the spirit of this clause is complied with regulation rules in this respect shall be framed by the Chief Engineers of the three Governments.

B. With regard to allowance for the rights of the Government of Mysore to draw off water for factories and towns from the water course in the Tungabhadra basin or the right of the riparian land owners to take water to which they may be entitled under the law or for the minor tanks in the Tungabhadra basin Hyderabad agrees to a specific figure limited to 4,000 M.Cft. of water.

C. Regarding the quantity of 57,000 M. Cft. exclusive of evaporation losses at the Lakkavalli reservoir under Clause (1) of the Mysore-Madras Agreement, Hyderabad does not commit herself either way to its acceptance or otherwise and shall be free to act under Clause (10) sub-para (2) of that Agreement. Subject to the above, Hyderabad does not object to the construction of the Lakkavalli reservoir.

D. The extension of irrigation from the existing Bhadra Anicut provided for under Clause (1) (b) of the Madras-Mysore Agreement, shall be permitted to subject to the same condition as laid down for the irrigation from the Sacrebyle scheme, mentioned under (A) above.

E. The Governments of Hyderabad, Madras and Mysore recognise the claims of Sangli, Bombay and any other riparian areas (excluding those of Mysore, Madras and Hyderabad which are already covered by the two Agreements between Madras and Hyderabad and Madras and Mysore) to an equitable share of waters which shall be decided by a tribunal set by the Government of India for the purpose of final apportionment of the Tungabhadra water between all the interested parties. Further the three Governments agree that the schemes under the two Agreements mentioned above are not intended to prejudice in any way the claims of Bombay, Sangli, etc.

F. In clause (2) of Madras—Mysore Agreement substitute "Below" for "Above" in the sentence "..... river Bhadra above the existing Bhadra Anicut ....." 10

Sd.
(Ali Hawaz Jung)

Sd.
(A. N. Khosla)
24-12-1945.

Sd.
(S. M. Younus)
24-12-1945

Sd.
(H. Narasimhaiya)
27-12-1945

Chief Engineer for Irrigation,
(Mysore)

Sd.
(A. R. Vankatachari)
26-12-1945,

Chief Engineer for Irrigation
(Madras)

(1) make an assessment of the material, capital and human resources of the country, including technical personnel, and investigate the possibilities of augmenting such of these resources as are found to be deficient in relation to the nation's requirements;

(2) formulate a Plan for the most effective and balanced utilisation of the country's resources;

(3) on a determination of priorities, define the stages in which the Plan should be carried out and propose the allocation of resources for the due completion of each stage;

(4) indicate the factors which are tending to retard economic development, and determine the conditions which, in view of the current social and political situation, should be established for the successful execution of the Plan;

(5) determine the nature of the machinery which will be necessary for securing the successful implementation of each stage of the Plan in all its aspects;

(6) appraise from time to time the progress achieved in the execution of each stage of the Plan and recommend the adjustments of Policy and measures that such appraisal may show to be necessary; and

(7) make such interim of ancillary recommendations as appear to it to be appropriate either for facilitating the discharge of the duties assigned to it; or, on a consideration of the prevailing economic conditions, current policies, measures and development programmes; or on an examination of such specific problems as may be referred to it for advice by Central or State Governments.

DOCUMENT MYK No. 113

PLANNING COMMISSION

Summary Record of the Discussion held in the Planning Commission on 24th February, 1955 regarding the Nandikonda Project.

Present:

Planning Commission.

Shri V. T. Krishnamachari
Shri G. L. Nanda
Shri S. V. Ramamurthy
Shri B. R. Tandan
Shri Tarlok Singh
Shri Yadava Mohan
Shri M. R. Kothandaraman
Dr. D. K. Malhotra
Shri K. Mitra
Shri M. M. Thomas
Shri P. C. Suri
Shri C. S. Parthasarathy.

Government of Andhra.

Shri C. M. Trivedi, Governor
Shri K. K. Anantharaman, Secretary, P.W.D.
Shri L. Venkatakrishna Iyer, Chief Engineer. Government of Hyderabad.
Snri B. Ramakrishna Rao, Chief Minister.
Shri D. V. Rao, Chief Engineer

Ministry of Irrigation and Power

Shri J. L. Hathi, Deputy Minister.
Shri T. Sivashankar, Secretary.
Shri Kanwar Sain, Chairman, C.W. and P.C.
Shri M. D. Mithal, Member, C.W. and P.C.
Shri S. Venkataraman, Deputy Secretary.
Shri M. G. Hiranandani, Director, C.W. and P.C.

Minister of Finance.

Shri S. Ratnam, Joint Secretary.
Shri C. B. Krishnamurthy, Deputy Secretary.
Shri Rathee, Deputy Secretary.
Shri S. Ramier, Finance Officer.

The following matters connected with the Nandikonda Project were discussed :—

Modifications required in the Project and Consequent Revision of Estimates.

2. At the outset, Shri V. T. Krishnamachari made it clear that it should be understood that the areas proposed to be irrigated by the Nandikonda Project are the clearly defined areas agreed to after discussions with the

Andhra representatives, and that acceptance of the present scope of the Nandikonda Project (Stage I) involved no commitments, whatever, in regard to other projects on the Krishna. As regards the estimates of cost, the Chief Engineer (Irrigation), Andhra, maintained that, due to fall in proces and consequent reduction in the schedule of rates by 10 per cent, he would stand by his original cost estimates. The C.W. and P.C. thought the estimates were likely to be exceeded under various heads.

Financing and Sharing of costs.

3. The sharing of costs of common works, as proposed in the joint report on the Nandikonda Project, was agreed to. Separate Agreement will be entered into by the Government of India with each State Government (*i.e.*, Andhra and Hyderabad) in respect of (i) its share of costs and (ii) advance of loans by the Central Government to the State Government and (iii) the terms for repayment. The State Governments undertook to charge betterment fees and water rates in accordance with the proposals in the Joint Project Report.

4. The Chief Minister, Hyderabad said that the development of the commanded area under the project should be planned in the initial stages and expenditure provision made. Shri V. T. Krishnamachari pointed out that National Extension Blocks should be organized as soon as the Nandikonda Project was sanctioned so that development of Land for irrigation might be financed through co-operatives, etc. The State Governments should also take steps to see that every village excavated the canal system in its own area. By this means, the wages, paid in every village would be available for development provision for expenditure for such ancillary purposes could not be made in the main project estimates.

Agency for Constructions

5. This item was discussed in a general way. The important point was the authority through whom orders of sanction for the dam and appurtenant works should be issued with whom contract would be entered into. The Irrigation and Power Ministry will prepare a note, embodying the result of the talks, for circulation. Preliminary arrangements for starting works.

6. This was not taken up for discussion.

DOCUMENT MYK. No. 114

GOVERNMENT OF INDIA

MINISTRY OF NATURAL RESOURCES AND SCIENTIFIC RESEARCH

No. EL-I-201(5) *New Delhi, the 21st April, 1951*

RESOLUTION

The Government of India have reviewed the position regarding the two organisations at present dealing with Electricity and Waterways Development, *viz.*, the Central Electricity Commission and the Central Waterpower, Irrigation and Navigation Commission which were set up *vide* the late Ministry of Works, Mines and Power's Resolution Nos. EL-I-201 (I) and DW. XVI-I(1), dated the 16th January, 1958. They have now decided, on grounds of economy and efficiency, to amalgamate these two organizations and constitute them into one organisation to be known as the Central Water and Power Commission. The composition functions, etc., of the Central Water and Power Commission shall be as follows:—

1. *Central Water and Power Commission* :—The Commission will take over the functions of the Central Waterpower, Irrigation and Navigation Commission and also those of the Central Electricity Commission.

2. *Composition of the Commission* :—The Commission will be a strong technical organisation, and when fully constituted, will consist of a Chairman and four Members, two of them directing the Water Wing and the other two directing the Power Wing, and such other full-time or part-time Members as Government may, from time to time, find necessary. The Chairman and full-time Members will be fully qualified engineers. The Chairman will also be *ex-officio* Consulting Engineer to the Government of India. In order to give due emphasis to the needs of both Water and Power problems, and to

co-ordinate the Designs work, three sub-committees, *viz.*, Water Sub-Committee, Power Sub-Committee and the Designs Sub-Committee will be constituted. The Chairman of these Sub-Committees will be nominated by the Government of India for a Specified period in the first instance out of the four Members of the Commission.

3. *Functions of the Commission* :—The Commission will be charged with the general responsibility of initiating, co-ordinating and furthering, in consultation with the State Governments concerned, schemes for the control, conservation and utilisation of Water resources, throughout the country for purposes of flood control, irrigation, navigation and waterpower generation, as well as schemes of thermal power development and also schemes of transmission and utilisation of electric energy throughout the country. The Commission will, if so required, also undertake the construction and execution of any such schemes. In exercise of the above responsibilities it will be the function of the Commission.

(*a*) to make all necessary investigations and surveys and when so required, to prepare schemes and designs:

(i) for the development of river valleys in respect of power generation, irrigation by gravity flow or lift, navigation, flood control, soil conservation, antiwater logging measures, reclamation of alkaline and saline soils, drainage and other related facilities such as malaria control, recreation and fish culture; and

(ii) for thermal electric power development;

(*b*) to undertake construction work on any river valley development or electric power development schemes on behalf of the Government of India or State Governments concerned;

(*c*) to advise and assist, when so required, the State Governments (Commissions, Corporations, or Boards that may be set up) in the investigation,

surveys and preparation of river valley and power development schemes for particular areas and regions and in the surveying of potential sources of load, the fore-casting of revenue from electricity supply and the formulation of electricity tariffs ;

(*d*) to advise the Government of India in respect of water power rights and disputes as between different units, of the effect which any scheme for the conservation and utilisation of water may have on the interests of the concerned units and of the interpretation of agreements in this regard between different units and any matter that may be referred to the Commission in connection with river valley development ;

(*e*) to advise the Central and State Governments on the administration of electricity legislation and control of electric utilities ;

(*f*) to advise the Government of India in regard to all matters relating to electric power development, public electric utilities both private and State owned ;

(*g*) to adivse the Government of India in regard to the settlement of priorities for plant, materials and foreign exchange as between various river valley development and power projects ;

(*h*) to collect, co-ordinate, the collection of, publish and analyse data relating to waterways, tidal rivers, rainfall run-off and temperature, ground water resources, silting of reservoirs, behaviours of hydraulic structure, etc., and to act as the Central Bureau of Information in respect of these matters ;

(*i*) to collect, maintain and publish statistical data relating to the generation, distribution and utilisation of electricity throughout India and to act as the Central Bureau of Information on all matters relating to the public electric supply ;

(*j*) to intimate schemes and arrange for the training of Indian Engineers in India and abroad in all aspects of river valley development and electricity supply industry ;

(*k*) to standardise instruments, methods of observation and record, materials and construction, design and operational features ;

(*l*) to review and lay down for the whole of India standard voltages and practices for generation, transmission and distribution of electrical energy ;

(*m*) to conduct and co-ordinate research on the various aspects of river valley development schemes such as flood control, irrigation, navigation, power development etc., and the connected structural and design features ; and

(*n*) to conduct experiments, research, propaganda, and generally to carry out such other activities as will promote the spread and use of electricity throughout the country, in particular in the semi-urban and rural areas.

ORDER

ORDERED that Resolution No. EL-I-201 (1), dated the 16th January, 1948 setting up the Central Electricity Commission and Resolution No. DW. XVI—I (1), dated the 16th January, 1948 setting up the Central Waterpower, Irrigation and Navigation Commission, shall stand cancelled and that this Resolution be communicated to all State Governments, all Chief Commissioners, the Several Ministries of the Government of India, Prime Minister's Secretariat, Cabinet Secretariat, Parliament Secretariat, the

Private and Military Secretaries to the President, all Indian Embassies and the High Commissioners for India in foreign countries, the Planning Commission and the Comptroller and Auditor General of India.

ORDERED ALSO that the Resolution be published in Gazette of India for general information.

Sd.

(A. N. KHOSLA)

Additional Secretary to the Government of India.

DOCUMENT MYK. No. 115

No. NR-4 (5)/56

GOVERNMENT OF INDIA

PLANNING COMMISSION

UDYOG BHAVAN,

NEW DELHI-2,

June 22, 1959/Asar 1, 1881 (Saka)

From:

The Secretary,

Planning Commission.

To

The Development Commissioners of all States.

Sir,

Subject:—**Advisory Committee on Irrigation, Flood Control and Power Projects.**

I forward herewith a copy of the Planning Commission resolution No. N. R. 4 (5)/59, dated 24-4-59 widening the functions of the Advisory Committee by inclusion with in its purview of flood control and all Irrigation and Power Projects for the Third Plan. This may kindly be brought to the notice of your Government and the departments in charge of the Irrigation, Flood Control and Power projects including drainage and anti-water-logging measures. The authorities concerned may also be requested to expedite submission of Project reports for those Second Plan schemes which may not yet have been submitted by them for clearance by the Advisory Committee.

2. The State Government may also arrange to forward project reports on schemes which they propose to sponsor for the Third Plan so that the necessary preliminaries may be completed well in Advance.

3. Normally project reports on Irrigation, Power and Flood Control schemes including drainage and anti-water-logging should be forwarded through the State Government, as submission of such reports and estimates direct by the engineers of the State leaves a doubt whether the assumptions etc., made in the project report are acceptable to the State Government or not.

4. While forwarding a project report, State Government may kindly indicate specifically that:

(*a*) The various proposals contained in the Project report regarding the agricultural, revenue, industrial and other aspects carry the approval of the State Government;

(*b*) The basis of the preparation of the financial forecast has been accepted by the State Government:

(*c*) The State Government have taken into consideration the proposals for repayment of central loans, if any, to be borrowed for the project;

(*d*) The steps that will taken by the State Government to implement the proposals referred to in (*a*) and (*c*).

In the case of unproductive schemes, the specific reasons for taking up the project should be mentioned.

5. The Planning Commission would once again wish to impress on the State Government that work on any Irrigation, Flood Control and Power Project should not be commenced until the project is cleared by the Advisory Committee and approved by the Planning Commission. Also where the scope of a project approved by the Planning Commission has later to be substantially altered, such modifications should be intimated to the Planning Commission and the Central Water and Power Commission for review by the Advisory Committee irrespective of the size of the project. For projects costing more than Rs. 1 crore the revised estimates should be sent to the Planning Commission if the increase is more than 10 per cent. Where the cost of the Project

is below Rs. 1 crore and the increase is not due to changes in the scope of the project but due to changes in rates and quantities, the revised project need not be sent, but the increase alone need be reported.

6. The Planning Commission would appreciate if the above suggestions are given effect to and all the concerned authorities in the State informed suitably.

Yours faithfully,

Sd.
(BALWANT SINGH NAG,)
For Secretary, Planning Commission.

Copy to :

1. Secretaries to the State Governments (incharge of Irrigation, Flood Control and Power Projects.)
2. Chief Engineers concerned in the States.
3. Ministry of Irrigation and Power.
4. Ministry of Finance.
5. Central Water and Power Commission (Water, Power and Flood Wings).

Sd.
(BALWANT SINGH NAG,)
For Secretary, Planning Commission.

DOCUMENT MYK. No. 116

Letter No. EL-II-7 (1)—60, dated the 25th July 1960, from Shri P. P. Agarwal, I.C.S., Joint Secretary to the Government of India, Ministry of Irrigation and Power, New Delhi, to all the State Governments.

Subject.—Dispute in regard to sharing of the waters of Inter-State Rivers.

I am directed to state that the Inter-State Water Disputes, Act, 1956, provides for the constitution by the Central Government, of a Tribunal for settlement of the disputes between two or more State Governments with respect to the use, distribution or control of the waters of, or in, any inter-State river or river valley. Such a Tribunal has, however, to be constituted after all possibilities of settling the dispute by negotiations, with or without the intervention of the Central Government have failed and any of the State Governments concerned makes a request therefor. It has been observed that negotiations for the settlement of the water disputes between the State Governments sometimes take a long time and delay the implementation of the schemes for development or regulations of the Inter-State rivers or river valleys. It is felt that in most of the cases it may be possible to expedite such negotiations if a forum for talks is provided by this Ministry or the Central Water and Power Commission. With this end in view it is considered necessary that the Central Government should keep itself in touch with the particulars of the water disputes between the various States, and the course of their negotiation and settlement, etc. I am accordingly to request that full particulars of the disputes in regard to Inter-State rivers or river valleys that might have arisen between your Government and the neighbouring State or States and the steps so far taken, or proposed to be taken, to resolve them may kindly be communicated to this Ministry.

Such information in respect of a dispute that might arise in future may also be sent to this Ministry in due course.

DOCUMENT MYK No. 117

To

The Prime Minister,
Government of India,
NEW DELHI.

Madam,

We the Members of Parliament, representing Maharashtra and Mysore beg to submit our representation for your kind consideration and speedy action.

You are aware of the controversies prevailing between Maharashtra and Mysore on one side and Andhra Pradesh on the other over sharing of "Waters of Krishna Basin".

This river Krishna takes its origin in Maharashtra and flows in Mysore and Andhra and ultimately discharges itself in the Bay of Bengal. The major supply of water to this river comes from Maharashtra and Mysore and it is but right that both these States should have their legitimate share of water from this Krishna Basin. It is the established practice, when different States are concerned with the right of using water that no State should proceed with the projects unless a settlement is reached between them, for the allocation of water to the respective States. But in this case, the Andhra Pradesh proceeded with its projects unilaterally in spite of the repeated protests since 1961 from both Mysore and Maharashtra Governments.

The State of Andhra Pradesh undertook the execution of Nagarjunasagar Project on the *plea*, that they would proceed with the I stage of the project and the remaining two stages would be proceeded only after an agreement about equitable and reasonable distribution of Krishna water is reached between the concerned States. But in spite of this assurance, it is regrettable to note that Andhra Pradesh is going ahead with the implementation of the II Stage.

And again the Ayacut to be taken into consideration for determining the shares of water, must lie in the concerned basin. But it is unfortunate that the Andhra Pradesh has been trying to include in its Ayacut areas lying outside the basin, just to exaggerate their claim for waters. The Government of Mysore and Maharashtra have repeatedly urged on the Central Government that the II Stage of Nagarjunasagar Project should not be proceeded with and an '*Impartial Tribunal should be appointed to settle the dispute*'. But it is unfortunate that the Minister for Irrigation and Power Dr. K. L. Rao has not taken any final decision while Andhra Pradesh is going ahead with further implementation of II Stage of Nagarjunasagar Project. We do appriciate the situation in which Dr. K. L. Rao has been placed. He comes from Andhra Pradesh elected unopposed and whenever there is controversy between two States it is always desirable and in the interest of justice and in his own interest that the matter is considered and decided by a gentleman who is unconnected with any of the contending States. This will avoid embarrassment to him.

So we submit respectfully that the controversy connected with Krishna waters may be dealt with and decided either by yourself or Dy. Prime Minister with a view to ensure justice to all the States and pending this, you may be pleased to issue instructions not to proceed with the II Stage of Nagarjunasagar and take necessary steps to appoint independent tribunal to settle the claims of concerned States. Otherwise there will be great reaction and each State will be constrained to adopt its own line of action, for safeguarding their interests.

Since Maharashtra and Mysore Governments are thinking of taking recourse to legal remedies, we earnestly appeal to your goodself to look into this matter and take suitable steps immediately.

Thanking you, we the Members of Parliament of Maharashtra and Mysore.

Yours faithfully,

DOCUMENT MYK. No. 118

Letter No. PWD 21 BRA 60, dated 29th October 1960, from the Secretary to the Government of Mysore, Public Works Department, Bangalore, addressed to the Joint Secretary to the Government of India, Ministry of Irrigation and Power, New Delhi.

Subject.—Dispute in regard to sharing of the waters of the Inter-State Rivers.

Reference.—Your No. EI-II-7 (1)—60, dated 25th July 1960.

I am directed to state that the position regarding sharing of waters in the Inter-State Rivers is as explained below :—

(1) *Krishna and Godavari Rivers.*

The Government of Mysore have recently indicated the lines on which the water should be distributed and put forward a rational basis for allocation and requested the Government of India to consider the whole problem *de novo*. The Government of India is aware that the recent Inter-State Conference to consider this question has ended in failure. The question of a forum for discussion of this does not arise as the Andhra Pradesh Government is adamant and has not shown any indication for resumption of talks.

(2) *Tungabhadra Waters.*

This forms a part of the Krishna River and is linked with the allocation of Krishna waters. Any forum for negotiation of this without acceptance of a rational basis for the allocation of waters as already suggested for the whole Krishna Basin, will not serve any useful purpose, as no discussion can be accepted on the basis of the so-called '1951 Award'.

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DOCUMENT MYK No. 119.

Report of the Committee to go into the availability of Water of Krishna River for utilisation in Mysore State.

1. *Introduction.*—1.1. The Government of Mysore have all along been contemplating to utilise as much of the waters of the Krishna river and its tributaries as possible for the benefit of the people in the Krishna basin in general and those affected by scarcity and famine in particular. After the inclusion of large tracts like, parts of Belgaum, Bijapur, Raichur and Gulbarga Districts in the reorganised State of Mysore, the question of utilising the water resources of the Krishna river and its tributaries assumed particular importance in view of the drought conditions which generally prevail in the above areas. With a view to improve the conditions of the people living in thase drought affected areas, the Government of Mysore initiated a number of Projects like the Project on the Ghataprabha river at Hidkal, on the Malaprabha river at Manoli, on the Krishna river near Siddapur and Almatti and so on. All these schemes have been fully investigated and some of them have also been taken up for execution.

1.2. During December 1964, a proposal was made by the Government of Maharashtra to the Union Ministry of Irrigation and Power suggesting westward diversion in the upper reaches of the waters from the Krishna and Ghataprabha rivers with the object of irrigation and power development in the southern part of the Ratnagiri District of Maharashtra State. This proposal, contained in the form of a note, was received by the Government of Mysore during January 1965. The note by the Maharashtra Government claimed that the westward diversion was quite essential for the development of the backward areas in the Ratnagiri District and that such diversion envisaged far greater advantages from a wider angle than the contemplated use of the waters within the State of Mysore.

1.3. The question of an equitable distribution of the available waters in the Krishna and Godavari rivers among the concerned States, has already been under serious consideration for the last four years. The States of Mysore, Maharashtra, Andhra Pradesh, Madhya Pradesh and Orissa which are concerned with the waters of the two rivers namely Krishna and Godavari, have affirmed before the Krishna Godavari Commission that each of the States has a vital interest in its share of the available resources. It was made out with several facts and figures, that each State needed all that could be made available for the development of the areas in the respective State and that the total quantity of water which could be expected was far short of the actual needs under the several development schemes that each State had in view. In view of this, it was clear, *prima facie*, that the proposal of the Government of Maharashtra was likely to have far reaching consequences on the Projects contemplated within the State of Mysore. It was, therefore, found necessary to examine in all its aspects, the proposal of the Government of Maharashtra regarding the Westward diversion from the Krishna basin into the Arabian Sea. Accordingly, the Government of Mysore constituted, under G.O. No. PWD 35 GMS 65, dated 22nd May 1965 (*vide* Appendix I) a Committee to go into the availability of waters of Krishna river for utilisation in Mysore, with the following Officers :—

(1) Chief Engineer, Investigation of Projects .... Chairman

(2) Chief Engineer, Irrigation Projects ... Member

(3) Dr. H. R. Arkeri, Joint Director of Agriculture (Extension) Member

(4) Sri N. P. Patil, Research Officer, Farm Management Scheme, Hebbal. Member

(5) Sri S. P. Bhat, Superintending Engineer, Planning and Investigation. Member-Secretary

Subsequently, the Chief Engineer, Investigation of Hydro-Electric Projects, was also made a Member of the Committee.

The following were the terms of reference of the Committee :—

(1) Whether any surplus water for such diversion to the Arabian Sea is available even after meeting fully the needs of irrigation requirements in the Upper-Krishna and Ghataprabha Valleys.

(2) Relative agronomic advantages gained by utilising Krishna waters in Bijapur, Gulbarga and Raichur areas.

(3) Per capita income as at present in these areas and as would accrue after utilising these waters.

(4) Availability of alternative sources of waters to irrigate 'Warkas' land in Ratnagiri District.

1.4 The Committee, in the course of six meetings, examined in great detail, the availability and extent of the water resources in the Krishna basin the several schemes in progress, under investigation and contemplated in future, the benefits that these schemes are likely to provide to the areas where they have been proposed and the effect the west-ward diversion proposed by the Government of Maharashtra was likely to have on the scope and utility of these projects. The Members of the Committee visited certain areas in the State where they could make an on-the-spot study of the benefits already obtained from the Projects in operation and from those expected to be taken up, the potentialities of the areas in general for extensive irrigation and their possible impact on the socio-economic conditions of the people in those areas. The Committee held discussions with the local officers of the concerned Departments. The examination by the Committee touched in particular, the aspects of agriculture as practiced at present in the draught affected areas and the improved conditions likely to prevail after the introduction of irrigation on a very large scale, in which, the Committee had the privilege of drawing freely the experiences of the local officers. The Committee's findings are detailed in this Report.

Irrigation schemes and the balance of 5.00* lakh acres being irrigated by wells, etc. This irrigation facility represents a benefit of 3.7 per cent of the cultivable area of the Krishna basin. In the case of Bijapur, Gulbarga and Raichur Districts, the irrigated area is even less than 2 per cent*.

3. *Scarcity Conditions in Krishna Basin.*—The eastern parts of Belgaum, portions of Dharwar, Chitaldrug and Tumkur, and the entire Districts of Gulbarga, Raichur, Bellary and Bijapur are those severely affected by famine and scarcity. According to the report of the Krishna-Godavari Commission, 19 taluks in the Mysore State have had suspension of land revenue of 75 per cent or more at least twice in a ten-year period and 50 per cent to 75 per cent at least thrice in a ten-year period. The area so affected works out to about 160* lakh acres which is 51 per cent of the total cultivable area in the State of Mysore and 70 per cent of the cultivable area in the Krishna basin in Mysore. In the above Districts, famine or scarcity causing severe distress, is known to occur with a frequency of about once in four years. These Districts, devoid of either adequate or proper distribution of rainfall, naturally form the second driest region in India, next only to the 'Thar' desert. Until recently, the division of the Krishna basin among the different States precluded any possibility of large scale Irrigation Project in the basin. It is a strange irony that while the rivers flow full across these vast stretches of land, large cultivable tracts often stand devoid of crops or with withered crops on account of the failure of rains, complete or partial. The history of famines in the District of Bijapur in particular goes back to nearly 560 years. Government have been obliged to spend colossal amounts by way of relief measures for ameliorating the hardships caused to the people on account of such famine or scarcity conditions. It has been recognised that there is no permanent

* Government of Mysore Memorandum or Krishna-Godavari Waters 1962.

remedy for these repeated hardships except the provision of irrigation schemes on an extensive scale.

4. *Need for Irrigation in Krishna Basin.*—4.1. It is difficult to over-emphasise the need for irrigation in these areas. At present, the areas affected by scarcity within the Krishna basin are growing crops like Jowar, Bajra, Millets, Pulses, etc. The average yield of these crops is very low being of the order of 1.1 quintals per acre for Jowar and hardly one quintal for Bajra the two staple crops of the area.

4.2. The effect of frequent scarcities is particularly noticeable on the people and the livestock population of the area. The people migrate to other areas in search of food and employment which causes them considerable suffering not without the inevitable demoralisation. Relief works in the form of construction of Roads, Tanks, Wells, etc., are their only means of substance during the periods of scarcity, but the frequency of such periods has left little scope for works of this nature. The effect on the livestocks has been still more severe. Fodder becomes too scarce during periods of scarcity and consequently the diminution in the cattle population, through mortality and migration becomes an irrepairable loss to the cultivators. The eastern part of Belgaum has a cattle strength of only 20 to 45* per hundred of agricultural population, while in the remaining areas of the scarcity zone comprising the Districts of Bijapur, Gulbarga and Raichur, it varies from 45 to 75* as compared with the maximum of 170 per hundred of agricultural population in the most favourably situated areas of the State.

4.3. With the introduction of irrigation and the application of modern methods of agriculture, it would be possible to increase the yield to as much

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*An Atlas of Resources-Vol. I-Mysore State. Published by the Indian Statistical Institute, Calcutta. (1960)

as 8 quintals per acre. These vast stretches of land are found to show remarkable response to irrigated agriculture and the need is, therefore, only for water to be made available. It is, therefore, only proper that irrigation facilities for this area need priority consideration not only from the regional angle but even from the National angle.

5. *Water needs of the Krishna basin.*—The eagerness on the part of the Government of Mysore in ameliorating the hardships of the affected people can be seen in the large number of irrigation works taken up in the different parts of the affected area. Some of these schemes like the Ghataprabha, Malaprabha, Upper Krishna (Phase I) have been commenced while others like the Bhadra, Tungabhadra, etc., are nearing completion. Many more schemes, both Medium and Major, like the Upper Krishna (Stage II & III), Bijapur Lift Irrigation Scheme, Bhima Lift Irrigation Scheme, have been fully investigated and are now under advanced stages of planning. A number of Minor Irrigation works has also been contemplated to help the local requirements and to spread the benefits over a wide area. It was roughly estimated during 1962, that about 1250* TM cft. of water would be required, even on a modest scale, to meet the needs in the Krishna Valley in Mysore State (*Vide* Appendix II). Since then, on a review of the needs and as a result of further investigations carried out, it has been observed that the requirement of 1250 TM cft. is most likely to be exceeded in the optimum development of the water resources in the several streams of the basin. The revised needs which work out to 1450 TM cft. in accordance with the further investigations carried out since 1962 have been shown in the statement marked 'Appendix III'.

6. *Yield of the Krishna Basin.*—The Krishna-Godavari Commission constituted by the Government of India in 1961 assessed the total yield of the

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*Government of Mysore Memorandum on Krishna-Godavari Waters 1962.

Krishna river in this State. A number of Minor, Medium and Major Projects, have been proposed in each of these sub-basin. It has been the policy to utilise the yield from a stream as far as possible in the basin by which it has contributed it. Any shortage of yield created in a sub-basin, either due to diversion into another valley or form an excess utilisation upstream in the same valley, is bound to seriously affect the scope of the Projects contemplated in those sub-basins. This deficiency, it may be pointed out, will seriously affect the hopes and aspirations of the people in the sub-basin and may even prove to be a permanent barrier to their economic advancement. The water potential of each individual Major stream in Krishna Valley has been fully examined with a view to assess the actual requirements in that sub-basin. The results of this study are given hereunder.

7. 1. *Ghataprabha Sub-basin.*—The total average yield of Ghataprabha river at Dhupdal, according to the report of the Krishna-Godavari Commission, is 141*TM Cft. The yield at 75 per cent dependability is 121 TM Cft. Mysore State has already taken up schemes like the Ghataprabha Stage I and II and has also planned for the III and IV Stages under the Ghataprabha Valley Development. There are certain commitments such as supply of water to Gokak Mills, riparian rights and a few Minor Irrigation Schemes. All these are expected to utilise nearly 120 TM Cft. of water up to Dhupdal weir. The Maharashtra State has proposed, as per Krishna-Godavari Commission report, to utilise 2.6 TM Cft. for irrigation in the Krishna basin and divert nearly 30.50 TM Cft. from the Hiranyakeshi river, a tributary to the Ghataprabha river, into Arabian Sea for Power generation. Thus, a total of 153 TM Cft. would be required both by Mysore and Maharashtra States together for the proposed schemes including the westward diversion suggested by Maharashtra. This will lead to a deficiency of 33 TM Cft. during any dependable year. In

*Krishna-Godavari Commission Report 1962.

other words, the dependability of the Schemes within the State of Mysore may be said to be reduced from an accepted standard of 75 per cent dependability to as low as 33 per cent dependability due to westward diversion proposed by Maharashtra. In simple language an irrigation scheme with 33 per cent dependability will be incapable of fulfilling its functions on an average in two out of every three years. Alternatively, under the Ghataprabha Valley development schemes, Mysore will have to forego more than 2 lakh acres of ayacut which is undoubtedly a serious blow to the plans contemplated by Mysore.

7.2. *Malaprabha Sub-basin.*—This sub-basin lies wholly in Mysore State. The average yield contributed by the river is about 70* TMCft. Nearly 60 TM Cft. of water is proposed to be utilised both for existing and proposed schemes. The balance flows join the Krishna river within the Mysore State and are expected to the utilised in the Upper Krishna Project for the benefit of Gulbarga and Raichur Districts.

7.3. *Upper Krishna Sub-basin.*—The portion of the Krishna river above its confluence with Bhima is referred to as the Upper Krishna Sub-basin in the Mysore State in contrast with the portion lying in the Andhra Pradesh beyond the Mysore boundary referred to as the Lower Krishna Sub-basin.

The average yield in the Krishna river at the Mysore-Maharashtra border is 550* TMCft. The Maharashtra State proposes to utilise 238 TMCft. for irrigation and to divert from the sub-tributaries, namely, the Koyna, Varna, Panchganga and Vedaganga, 259 TMCft. for Power Generation by westward deversion into the Arabian Sea as per Krishna - Godavari Commission report. Thus, the total utilisation proposed by Maharashtra State is 497 TMCft. leaving only a balance yield of 53 TMCft. for utilisation in the Mysore State.

* Krishna-Godavari Commission Report 1962.

Mysore has proposed a utilisation of 130 TMCft. under the Bijapur Lift irrigation Scheme and 375 TMCft. under the Upper Krishna Project. With the westward diversion by Maharashtra State materialising, the yield available at the Bijapur Lift Irrigation site and the Upper Krishna site would be 65 TMCft. and 22 TMCft. respectively, against a contemplated utilisation of 130 TMCft. and 375 TMCft. respectively for the two sehemes in question. The short fall consequent on the proposed westward diversion will thus severely affect the schemes contemplated by Mysore. It is needless to add that such severe curtailment resulting from the proposed westward diversion will mean a serious blow to the people of the Districts of Bijapur, Gulbarga and Raichur, who have been seriously and very frequently affected by famine and scarcity. The need for irrigation in these areas as a permanent remedy to there chronic distress conditions, was well recognised, but little could be thought of by way of relief until the possibilities of extending irrigation sehemes was fully established. At this stage after the irrigation scheme have been fully investigated and found to be feasible, the proposal of westward diversion by the Maharashtra State with its consequent curtailment of what was contemplated by Mysore, is bound to cause frustration and despair in the minds of the affected people. It would be unwise to think of any schemes which will adversly affect the benefit offered to these affected areas.

Attention may be invited here to the fact, that the Maharashtra note suggests suitable modifications in the scope of the Upper Krishna Project with the object of what is stated to be a balanced development at District level. This suggestion has been considered in greater detail in a further paragraphs, but at this stage it should suffice to say that the scope of the Upper Krishna Project has been evolved after a thorough examination of the needs of the various areas, the extent of possible submergence of lands, the financial aspects involved etc. The State alone, therefore, is the best Judge to

determine the scope of any Project, and the suggestion contained in the Maharashtra note for a modification is, to say the least, quite unwarranted.

7.4 *Bhima Sub-Basin* :—The average yield of Bhima river at the Mysore Maharashtra States border is 398 TMCft. The Maharashtra State proposes to utilise 294 TMCft of water for irrigation and 5 TMCft for Power generation by westward diversion into the Arabian Sea. This leaves a balance of 99 TMCft of water for utilisation in Mysore State. Mysore proposes to utilise about 74 TMCft of water in this sub-basin. Though, apparently the requirement of Mysore can be met in this sub-basin, the question of further utilisation for irrigation purposes cannot be completely ignored.

8. *Effect of Westward diversion* :—The yield from the various sub-basins, utilisations proposed both by Mysore and Maharashtra and the effect of westward diversion on each of the Project in the sub-basins, have been listed in the statement under 'Appendix V'. From this Statement it can be seen that the Projects across Ghataprabha and Krishna rivers will suffer very severe shortfall of yields resulting from the proposed westward diversion. The Mysore State as already stated in the earlier paragraph, has planned for a utilisation of 1450 TMCft to irrigate 74 lakh acres in the Krishna basin. Even with this utilisation the irrigated area in the State will barely reach 26 per cent which is quite low when compared with the corresponding figures in some of the adjoining States. The westward diversion is a permanent substraction from the available yield in so far as the downstream areas are concerned. With the several schemes now contemplated with the sole object of maximum development on a regional basis as far as possible, shortfalls resulting from westward diversion will not only seriously affect the contemplated regional development, but will leave a permanent barrier against any possibility of

future development by the curtailment of the scope of the Projects now contemplated. It is obvious therefore, that there is no scope for westward diversion when the requirements of the several Projects planned or executed by Mysore, are taken into account.

9. *Grounds for westward diversion*:—As the note of the Maharashtra Government deals largely with the subject of westward diversion for the object of irrigation in the southern part of the Ratnagiri District, it would be well to consider the arguments putforth by the Government of Maharashtra in this behalf. It has been stated that though the rainfall in that part is as high as 110", it is not adequate for superior quality of rice to be grown. Rice is stated to be grown only in the low-lying areas which constitute 14 per cent of the cultivable area and that coarser varieties are being grown in the higher areas which account for 4 per cent of the cultivable area. These higher areas locally known as 'Warkas' lands are said to be porous sandy loams devoid of fertility and humus and that according to the opinion of the experts, they could be made to yield satisfactory crop yields, if the facility of irrigation were provided. According to the studies said to have been carried out, the west flowing rivers are found to be incapable of being harnessed economically as the costs of the storages are stated to be exhorbitant and that the cost-benefit ratio works out to substantially less than one. The note, therefore, concludes that the only recourse open is to provide irrigation under the tail races of Hydro-Electric Projects to be established by westward diversion of the east flowing streams. Stressing the economic backwardness of the southern part of the Ratnagiri District, the Maharashtra note compares the relative conditions in Bijapur District of Mysore with those in the Ratnagiri District of Maharashtra and suggests that in the larger National interest, considered from the angle of either per capita income or cultivable land per head of population, there is

said to be a distinct case for a priority for irrigation in the southern part of Ratnagiri District by the proposed westward diversion, even by a curtailment of the proposed utilisation in the Raichur District. The note concludes by saying that the westward diversion of the Krishna waters alone will give the benefit of irrigation to the areas in Ratnagiri District which cannot otherwise have any irrigation facility and that with a large block of cheap hydel power by such diversion, the schemes may be expected to give an overall benefit-cost ratio of 2.2 and that, being located beyond the economic transmission range of power stations at the collieries, the Hydel Power would go a long way in improving the economic conditions of the people in those areas.

This Committee has gone minutely into the facts, figures, arguments and the mass of data furnished with the note of the Maharashtra Government and after careful consideration, has to make the following comments.

10. Ratnagiri, unlike Bijapur, is not a Famine District.—It would be pertinent to state at the very outset that the Ratnagiri District is not a scarcity area, according to the report of the Fact Finding Committee for the Survey of Scarcity areas in Maharashtra State, 1960 volume II, Part I. It states " As will be seen from the rainfall figures this District has heavy and assured rainfall and there is no part in which the rainfall is less than 42.86 inches during the last 27 years. *This district cannot, therefore, be considered as affected by scarcity, even occasionally let alone frequently* ". Therefore, the argument that the Ratnagiri District is in dire need of Irrigation facility for its econmic sustenance can be hardly convincing. The argument that the Ratnagiri District should be held eligible for a priority over the Bijapur District for the irrigation facilities by westward diversion of the Krishna waters appears to be based on a strange reasoning. Ratnagiri District has an average rainfall of about 110 inches, while the Bijapur District has an

average rainfall of only 22.4 inches with a large variability. The former District has never had even a shadow of either scarcity or famine, whereas in the Bijapur District famines and scarcities have been occurring with a frequency of as much as once in four years. In the Ratnagiri District, rice, the staple food crop is being grown regularly with no known failures, while in Bijapur District, the crops suffer from total or partial failures almost every year. A large part of Ratnagiri District comprises of 'Warkas' land, which, at least in their present condition, is known to be unfit for irrigation due to highly undulating topography and extremely porous conditions of soil. The soils in the Bijapur District are known for their fertility and responsiveness to irrigation. While Mysore has been endeavouring to stabilise the agricultural economy of the Bijapur District and other similar drought affected areas by the introduction of irrigation and thus provide the people with the means of their livelihood, the Maharashtra Government appears to be concerned with the raising of superior quality rice in place of the coarser variety now grown. This comparative picture of the conditions in the two Districts should be sufficient to indicate which of them should have a priority for the use of the waters that the Government of Maharashtra is proposing to divert.

11. *Irrigation in Sholapur District in Maharashtra*:—It would perhaps be more appropriate to compare, if such comparison is at all necessary, the Sholapur District of Maharashtra with the Bijapur District of Mysore. Both Districts are frequently affected by droughts and being contiguous, the forming practices are also alike. In both Districts the average annual rainfall is about 23.6 inches, and there is similarity in the cultivable areas. The Sholapur District has however an existing irrigation which is 9·7% of the cropped area while it is only 1·9% in Bijapur District*. The Maharashtra Government has proposed a number of irrigation schemes across the Bhima River and its tributaries

*Krishna Godaveri Commission Report 1962

under which 105 T.M.Cft. are excepted to provide irrigation e nefit to an area of 9 lakh acres in the Sholapur District. The Government of Maharashtra has obviously been compelled by the scarcity conditions in that District in proposing this extensive irrigation. In view of the fact that the large tracts in Mysore, contiguous with the District of Sholapur are similar, there appears no justifiction, moral or otherwise, in denying the benefit of irrigation to Bijapur District and other similar areas when they enjoy the added advantage of soils suitable for irrigation.

12. *Reasons for low yields in Ratnagiri District*:—12.1. The reasons for the low productivity of soil in the Rathnagiri District are also not difficult to trace. The paddy cultivation in that area is an age-long practice in which fine varieties are planted in low-lying areas where water from rainfall is supplemented by seepage waters from the higher lands. The low yields of this crop are mainly due to the traditional methods of cultivation followed even to-day and the low level of the inputs used in raising the crops. New technology such as the use of 'Japanese' method of paddy cultivation has not been adopted on a large scale. After new technology is introduced and fertilisers are used liberally, it will be possible to more than double the present yield of paddy in the low-lying areas, without any iraigation facility.

12.2. With the rainfall of 110" the water resources are better exploited to the fullest extent by introducing short term paddy which matures in about 80 to 9 0 days. The introduction of short duration paddy to suit the rainfall and soil conditions of the District is worth serious consideration of the Maharashtra Government. According to the Maharashtra Note, longer duration paddy maturing in 150 to 180 days is grown in about 14 per cent of the low-lying areas, while coarser varieties f paddy maturing in 80 days are grown in about 4 per cent of the area. Th e remaining areas known asthe

"warkas" lands grow crops of inferior millets, such as Vari, Magali Kulthi, etc., once in four to five years and the rest of the land is kept fallow.

12.3. "Warkas" lands are situated at higher levels which are undulating and generally slope towards the valleys. The lands at higher level are sandy and porous. Although the cultivators may terrace these higher lands and even do the bunding, these soils do not hold water for more than a couple of days with the result that water seeps down and finds its way to the lower reaches. These lands do not also retain their fertility due to the heavy down-pour of rains every year and the consequent leaching of the humus from the root zone of the crops. There characteristics, which contribute to the low yield of the " warkas " lands have been mentioned in the Maharashtra Government's Note itself.

13. *" Warkas " Lands unsuitable for Irrigation.* --Technologically, the soils best suited for irrigation are those which are medium in texture and retain the maximum quantity of moisture in the root zones of the crops, without at the same time getting water logged. Further, the landscape should be nearly flat or gently sloping so that the cost of land formation for irrigation will not be heavy. The topography of " warkas " lands is highly undulating and the cost of their levelling would be almost prohibitive. If at all the warkas soils which are sandy and porous have to be irrigated, they would need frequent applications of water in large quantities which in turn would only assist heavy percolation and the leaching of the top zone. It is only with massive efforts to level the land and to consciously build up the top fertility of these soils extending over several years that some tangible results could be obtained at the expense of a large amount of time and energy of the people and the State Government. The warkas lands being poor by their very nature, permit only the cultivation of inferior millets. These lands are

put under the plough once in four or five years, not because of the precarious rainfall, but because of the inherent poverty of the soils to support normal cultivation. It is possible to bring up the fertility of these lands through the use of heavy doses of manures, fertilisers, and through suitable soil conservation measures. All these measures however will only help in making them fit for continuous cropping which might help them to support crops of millets being grown without intervals of fallow period. An alternative possibility for the use of warkas lands exists in putting such areas under grasses, legumes and fruit trees, which not only help in preventing soil erosion, but also in building up soil fertility to some extent. This would be helpful in developing dairy industry and in the setting up of fruit processing industries.

14. *Bijapur and Ratnagiri not comparable.*—14.1 :—The Maharashtra note attempts a comparision between the Bijapur District of Mysore with the Southern part of Ratnagiri, using what is stated to be the agricultural productivity in the two areas compared. It is however necessary to point out several misconceptions in the rationale of such a comparison. It is observed that the statistics of the entire Bijapur District have been compared with those of only the Southern part of Ratnagiri District though the comparison claims to include only the area to be benefitted by the proposed Bijapur Lift Irrigation Scheme. Basically, the two areas are not at all comparable, being so different in topography, climate, rainfall, soil types, agricultural practices and crops grown. The crop yields under such variable conditions, which has been used as the basis for arriving at the per capita income in the two Districts can only lead to misleading conclusions. The comparison has been vitiated by the inclusion of the Southern parts of Bijapur District which are more favourably situated and the very high average yield assumed for groundnut per acre. A comparison of the northern taluks of

Bijapur with the Southern Taluks of the Ratnagiri District is found to show that the agricultural income *per capita* is more or less identical. The Statistical data in respect of these two areas are given below :—

STATEMENT SHOWING THE SALIENT FEATURES OF WORST SCARCITY AREA OF THE NORTHERN TALUKS OF BIJAPUR DISTRICT OF MYSORE STATE AND THE AREA COVERED BY EIGHT TALUKS OF RATNAGIRI DISTRICT OF THE MAHARASHTRA STATE.

Sl. No.	Particulars	Northern Taluks of Bijapur District.	Southern Taluks of Ratnagiri District.
1.	Annual average weighted rainfall in inches in the area.	22.4″	118″.0
2.	Geographical area of the Northern Bijapur District (in acres).	26,03,182	15,41,000
3.	Culturable area	24,52,878	10,61,400
4.	Average annual cropped area	23,12,987	4,09,200
5.	Population as per 1961 Census	8,82,040	9,15,000
6.	Intensity of population per Sq. mile (average).	217	380
7.	Average annual agricultural *per capita* income in Rupees.	37.36*	37.40

(**Vide* Appendix No. VI)

The claim therefore, that the District of Ratnagiri is more backward than Bijapur, stands disproved and is unacceptable.

14.2. The density of population in both the Districts also carries certain significant indications. The density in Ratnagiri District is 318 per Sq. mile while it is 251 per Sq. mile in Bijapur. The rates of increase in population are found to be 0.61 per cent in Ratnagiri and 2.0 per cent in Bijapur, per year, during the period 1941-1961. The lower population density in Bijapur District easily accounts for the relatively higher *per capita* holding. But higher rate of growth of population without the corresponding increase in income, which in the case of Bijapur will have to be wholly from

agriculture, is certain to bring about a lower *per capita* income. It is this aspect which must be appreciated to understand the urgency and the need for irrigation in Bijapur and other similar districts.

14.3 :—There is also an element of unfairness in making a comparison of the *per capita* income based on agricultural yields alone, when it is known that there are several other sources of income to the people in Ratnagiri, which are not available to those in Bijapur. In the words of the Maharashtra note, "The ease and comfort that may be visible in the district is produced by the considerable profits made in Bombay by a portion of the population of the Ratnagiri District should go through every year and bring back to their villages their earnings of the fair seasons ". It is doubtful, whether the people of Ratnagiri, with more attractive prospects of industrial employment in and/or near Bombay will at all take to agriculture seriously. The absence of opportunities for industrial employment in and around Bijapur, simply high lights their inevitable dependence on agriculture as their only means of economic improvement.

14.4. The reasons for low crop yield in the Ratnagiri District are something other than want of irrigation. In the Ratnagiri District, the lands are under the " Khoti " system and the majority of those who cultivate the lands are either the tenants or sub-tenants of ', Khoti " who, not owning the lands themselvs have no interest in developing them. In this situation it is doubtful whether any large scale improvement can be expected with the introduction of irrigation. On the otherhand, in the Bljapur District, the farmer generally owns the land and tries to take the maximum care of his land with a view to obtain as much yield as possible under the precarious rainfall with which he has to contend. He tries to meet the nature's hazards through judicious soil and water management practice. The soils of Bijapur

District even in their present condition are capable of producing some crops under the precarious rainfall conditions, and their performance would be manyfold better with assured water supply.

14.5. The suggestion contained in the Maharashtra Note regarding the scope of the Upper Krishna Project, already referred to in para 7.3 is to the effect that the Right Bank Canal from Narayanapur Dam (now Siddapur) proposing to irrigate 3.00 lakh acres in the Raichur District should be dropped and in its place the I stage of the Upper Krishna Projects should be modified to irrigate 5.57 lakh acres in Bijapur District which would then raise the irrigated area to 14.4 per cent and secure balanced development at District level. The note further goes on to say that the proposed multipurpose schemes based on west-ward diversion would irrigate about 3.00 lakh acres which would raise the irrigated area to 14.7 per cent in Ratnagiri District. The special significance underlying this parity of percentage of irrigated area has not been explained. The disparity in the agriculture income which appears to be the ground for the proposed parity does not exist as already shown in para 14.1. Even if it exists, an identity in percentage of irrigated area does not lead to an identity of agricultural *per capita* income in the two areas which are so widely different. Moreover, the agricultural *per capita* income along as a measure of the economic condition of the people is fallacious as it excludes several other sources of income available to one and not the other. The idea of "balanced development at District level" appears to have little relevence in the Plans for optimum development, for, benefits like Irrigation are extended to certain areas not or the principle of a dole, but on the basis of balance of advantages resulting therefrom.

14.6. The claim made in the Maharashtra Chief Minister's letter forwarding the note on the westward diversion to the Government of India " for a

share of about 40 T.M.Cft of the Krishna water on the analogy of the uneconomical lift irrigation in Bijapur District deserves special notice. The Bijapur Lift Irrigation Scheme was conceived and developed by the then Bombay Government as part of the Koyna Project. It was then regarded as the only solution to the vexed problem of Bijapur. Nothing has happened since then which may be said to have altered the economic aspect of the lift irrigation project, except of course, the passage of a few more years of suffering of the people, under scarcity or famine. If that unfortunate District could claim some sympathy as part of the Bombay State, its inclusion in Mysore State connot alter it and on the contrary, the scheme has secured an added validity in the light of Mysore's known Hydro-electric potential and at a transmission range smaller than from Koyna. The remark that the lift irrigation scheme is an uneconomic proposition is therefore hardly convincing. It is a known fact that all along the banks of Krishna river and its tributaries in Maharashtra, a network of lift irrigation schemes have been successfully operated for over two decades. What is true of Maharashtra is more so in the case of Bijapur with its vastly superior soils and cheap hydel power within more favourable transmission ranges. Further, even granting that lift schemes are uneconomical, it does not relieve the Mysore Government from its implementation, as in the long run, it is more economical than the only other alternative of spending large amounts towards relief measures every year.

14.7. Even from a national angle, it pays to use the waters of Krishna river and its tributaries for irrigating the parched soils of Bijapur and other areas in Mysore State than to divert them to irrigate the "warkas" soils in Ratnagiri which are drenched with an annual rainfall of 110". The red and black soils of Bijapur District with varying depths are capable of producing a variety of crops like Sugarcane, Paddy, Cotton, Vegetables and Fruits

yielding high and rich dividends, which should make the proposition of irrigation in the Bijapur District far more attractive from a National angle, than in the Rathnagiri District.

15. *Bijapur can produce more food* :—15.1. The overall advantage in the use of water in Bijapur rather than in Ratnagiri can be easily demonstrated. The quantum of water proposed to be diverted by Maharashtra according to its note in question in 97·50 T.M.Cft. to benefit an area of 3.57 lakh acres. This quantity if used in the Bijapur District can irrigate nearly 5.5 lakh acres according to a mixed crop pattern predominantly with food crops. In working out this comparison on assumption has been made that the crop pattern for the 3.57 lakh acres will be more or less similar to the one shown in the Maharashtra note for the Kasari Multipurpose Scheme. Further, the proposed diversion has been assumed for purposes of this comparison to affect only the irrigation in Bijapur District. This assumption is necessary because the westward diversion of 97.5 T.M.Cft can affect any or all the projects in the Mysore State.

15.2. It is observed that the crop pattern proposed by Maharashtra under the Kasari Multipurpose Project provides for food crops to the extent of only 50 per cent of the total area to be irrigated, whereas it can be as much as 90 per cent in the case of Bijapur District. In view of this consideration, it is found that while Ratnagiri district can produce only 1.6 lakh tons of food, the same quantity of water in Bijapur district would produce 4 lakh tons of food. This is indeed the most vital consideration in the context of country's food requirements.

16. *Hydel Power and not Irrigation is the Primary object of Maharashtra.*—

16.1. The Maharashtra note winds up with the Statement " it would not be out of place here to state that with the point of view of maximum benefits to the nation, the multipurpose projects based on westward diversion of waters from

Krishna not only give the benefits of irrigation to the areas in the Ratnagiri District (which cannot have any irrigation facilities from any other source) but would make a large block of cheap hydel power available for use in western Maharashtra located beyond the economic transmission range of power stations located at collieries. The overall benefit-cost ratio for these projects will be considerably higher being more than 2.2. Another important factor in favour of these multipurpose projects is the conservation and saving of avoidable water loss due to utilisation of waters at sites involving low reservoir losses and savings of transit losses in the river, the use being practically at the source itself." The very lengthy argument made in the Maharashtra Note in favour of the irrigation facilities in the Ratnagiri District and the relatively inconspicuous mention of the necessity to produce Hydel Power as a pre-condition to irrigation on the tail races seem to be directed towards securing a ready acceptance to an otherwise unacceptable proposition. The need for power has not been explained, nor is the extent of power requirement clearly stated. There are no technical details of the hydel power schemes to verify details whether they have been correctly worked out and what factors have actually contributed to the rise of the benefit-cost ratio. The proposal of irrigating 'warkas' lands is by itself an impracticable proposition for the several reasons explained in the previous paragraphs. It is inconceivable that a large quantity of water which is in the words of K. G. Commission a "scarce natural resource in the entire Krishna basin" should be diverted across the Western Ghats to take up an uncertain experiment of irrigating warkas lands, even if it helps generation of block of hydel power when the same quantity of water can be put to a more urgent and legitimate use to relieve distress conditions among a large group of people. The fact that the benefit-cost ratio has risen from less than one in the case of pure irrigation schemes to 2·2 with the addition of Hydel Power is clearly an acknowledgement that the

schemes contemplated by Maharashtra are primarily intended for Hydel Power and that irrigation is only an incidental benefit. There can be little doubt that the Maharashtra Government has tried to establish irrigation of the 'Warkas' lands as the primary object in the westward diversion and the Hydel Power as only an incidental benefit, instead of putting it the other way which it really is, as it was apprehensive that the proposal would make itself less acceptable on the ground that it was an attempt to produce power from the quantity of water which was needed elsewhere for irrigation and on which have rested the hopes of large group of people in the State of Mysore.

16.2. According to the particulars furnished to the Krishna-Godavari Commission the Maharashtra Government has proposed a westward diversion for power purposes of 254 TMCft from the tributaries of Krishna river within that State. It is seen from the maps these areas are situated immediately to the north of Ratnagiri and contiguous with the area for which the Maharashtra Government is anxious to provide the facility of irrigation based on westward diversion. If irrigation is considered so vital, it was necessary for the Maharashtra Government to explain why such a large quantity of water was being diverted purely for power generation with only negligible portion of the potential for irrigation in the contiguous areas which are not very different from those with the southern parts of Ratnagiri District. It is of course possible for the Government of Maharashtra to claim that irrigation below the tail races of these Hydel schemes though not mentioned now has not been overlooked, but it will only mean and also confirm that westward diversion schemes are essentially power projects and that irrigation proposed under them is merely as camouflage to make them easily acceptable.

17. *Irrigation needs are paramount.*—17.1. In the absence of a mention of specific industries for which power is required in the western Maharashtra,

there is ground for a legitimate doubt whether such a large block of Power is at all necessary. The possibilities of the west-flowing rivers in the southern Maharashtra were examined with regard to their Hydel Power potential and it was found, even on a very rough assessment, that these rivers, by themselves, could be harnessed for the normal industrial requirement of that region without the necessity of westward diversion of the east flowing rivers. The need for power for industrial development cannot under any circumstances have priority over irrigation as power requirement can be met from alternative methods of power generation, like the thermal and nuclear power, but there is no known subtitute at present for the raising of food crops needed by hungry peoples in dry areas except through extensitve irrigation of land.

17.2. The area comprising the districts of Belgaum, Bijapur, Gulbarga and Raichur lies in the northern dry belt of Mysore State. This belt is often subjected to scarcity and famine conditions, chiefly because of precarious rainfall. The weather for the most part of year is dry and warm. The temperature ranges from a minimum of 13°c to a maximum of 41°c. The rainfall in this area is meagre though it covers a period of about 6 months in a year. The usual rainfall on an average is around 24″ (620 mm) which also is uncertain and most unevenly distributed, (*vide* Appendix VII). Even during the crop season, there will be many days without rains resulting in either lean crop or a total failure of crop. Only once in about 3 to 5 years, the area gets fairly good crops and the farmers have to make a living on whatever they get from the poor harvest in the other years. In these circumstances, agriculture instead of being a sustained and continuous effort for the farmer, is in the nature of fits and starts, with a gamble in rain, with the object of making the best from what Nature is pleased to bestow on them.

18. *Irrigation in Bijapur will prove most beneficial.*—Major portion of the area of these districts is covered with soils which are black with distinct

features. These soils are of varying depth and are either found as uniform extensive areas or intermixed with patches of redsoils. The red soils usually occur on elevated areas and the black soils at the lower plains or in the valleys. The black soils are commonly known as black cotton soils. The depth of the black soils is greatly variable. On the uplands the soils are thin, light coloured and poor. In the valleys and low lying plains, these soils are deep extending upto 20′ near the river. They are classified into shallow medium and deep black soils depending upon the depth of the soil. The nature of soil determines the nature of crops grown in the area. The main features of these soils in these districts are as summarised below.

18.1. *Shallow to Medium Black Soils.*— Depth of these soils varies from few inches to about 4 feet in the valley. Jowar, Pulses, oilseed and cotton are grown under rainfed conditions. Under irrigation, rice, sugarcane, vegetables, maize, jowar, wheat and cotton crops can be successfully grown.

18.2. *Medium and Deep Black Soils.*— Depth of these soils generally extends to several feet near the rivers. Jowar, Wheat, Cotton, pulses and oilseeds are grown under rainfed conditions. Under irrigation, rice, chillies, vegetables, Jowar, Wheat and Cotton can be grown.

18.3. *Red Sandy Soils.*— The soils are shallow to medium in depth and are well-drained and generally good for Kharif crops. Jowar, groundnut and other oilseeds are grown under rainfed conditions and paddy, garden crops and chillies can be successfully grown under irrigation.

18.4. *Cropping Pattern and Crop Yields.*—Farming at present in the Districts of Belgaum, Bijapur, Gulbarga and Raichur is largely for substenance and is oriented to meet the needs of the family under rainfed conditions. Over 80% of the area is under food crops comprising cereals and pulses. Chief among the cereals are Jowar, Bajra, Maize, etc. Remaining area is

occupied by commercial crops chief among which are cotton and groundnut. The following table shows the principle crops their average yields under rainfed conditions and their probable yields expected under irrigated conditions.

Sl. No.	Crop	Yield per acre in Kg.					
		Bijapur Dist.		Raichur Dist.		Gulbarga Dist.	
		Rain-fed	Irri-gated	Rain-fed	Irri-gated	Rain-fed	Irri-gated
1.	Paddy	—	1,450	—	800	—	1,250
2.	Ragi	295	900	121	900	227	900
3.	Jowar (Kh)	125	850	152	800	227	800
4.	Jowar (R)	167	650	113	800	120	600
5.	Bajra	68	400	131	500	145	500
6.	Maize	117	1,250	176	1,250	260	1,250
7.	Wheat	105	450	83	600	136	350
8.	Navane (Kh)	101	450	62	450	—	—
9.	Navane (R)	101	375	62	375	—	—
10.	Same	101	400	46	400	—	—
11.	Groundnut	199	900	193	800	454	1,000
12.	Seasmum	111	450	121	450	132	450
13.	Castor	151	500	25	300	91	500
14.	Cotton (Laxmi)	22	375	18	300	36	300
15.	Cotton (Jayadhar)	22	550	17	300		
16.	Pulses	71	350	65	350	250	400

18.5 The introduction of irrigation on an extensive scale is expected to bring about a great change in the farming practices, outlook and economic conditions of the people in these Districts. The first major change will be in the people's approach to farming from one of sustenance to one of a business venture. The farmers having realised the latent qualities of the land will be quick to exploit the opportunity commercially. The economy will then be highly market-oriented. Cash crops like sugarcane, cotton, paddy, groundnut and a variety of fruit and vegetable crops yielding high returns to the farmers will occupy the land, replacing some of the area at present predominantly

occupied by cereals and pulses. The fact that these areas are located among the deficit regions, the production of food crops within the light irrigation zones, will remain a continuing attraction to the farmers. The following table representing the prevailing crops under irrigated conditions under the Ghataprabha Left Bank Canal will illustrate the point in view.

Sl. No.	*Crop*	*Percentage under Irrigation*
1.	Maize	32·14
2.	Jowar	20·70
3.	Tag Hemp	9·00
4.	Gram	6·64
5.	Barley	6·00
6.	Chillies, Garlic, Onion	5·90
7.	Groundnut	5·70
8.	Ragi, Rala, Wara	2·50
9.	Sugarcane	2·50
10.	Rice	1·25
11.	Bajari	1·07
12.	Cotton	0·45
13.	Fodder, Peas, Fruits, Vegetables, Oilseeds and Miscellaneous	6·15
	Total	100%

ABSTRACT

(i) Food crops	65·4%
(ii) Pulses	12·34%
(iii) Fibre	0·45%
(iv) Miscellaneous	21·81
Total	100·00%

Note:—Particulars furnished in the table refer to the Crop pattern obtaining under Gokak Canal system from (1940—1960) for a typical year.

18.6 It is estimated that an area as high as 52 lakh in the four Districts of Bijapur, Belgaum, Gulbarga and Raichur will be brought under irrigation

after the implementation of the Major, Medium and Minor irrigation schemes. A detailed break up is given in the following table

(*Area in thousand acres*)

Sl. No.	*Scheme*	*Belgaum*	*Bijapur*	*Gulbarga*	*Raichur*
1.	Ghataprabha Left Bank Canal	111·40	186·60	....	....
2.	Ghataprabha Right Bank Canal	129·00	169·00	....	....
3.	Ghataprabha Left Bank Canal (HL)	166·00	....	....	....
4.	Bijapur Lift Irrigation Scheme ...	114·00	736·00	....	....
5.	Malaprabha	17·00	3·00	....	....
6.	Tungabhadra Project Left Bank Canal	....	....	....	580·00
7.	Upper Krishna Left Bank Canal	....	272·00	558·00	....
8.	Upper Krishna Right Bank Canal	....	....	....	370·00
9.	Bhima Irrigation Scheme	....	....	100·00	.. .
10.	Bhima Lift Irrigation Scheme	....	....	100·00	....
11.	Tunga Reservoir Project	....	....	....	75·00
12.	Upper Tungabhadra Project	....	....	....	46·20
13.	Medium Projects	93·50	40·13	166·20	19·46
14.	Minor works (approximate)	222.18	351:85	276·42	233·68
	Total	853·08	1758·58	1200·62	1324·34

ABSTRACT

Bijapur	...	17,58,580	Acres
Belgaum	...	8,53,080	Acres
Raichur	...	13,24,340	Acres
Gulbarga	...	12,00,620	Acres
	Total	51,36,520	or 52 lakh Acres.

18.7. The area comprising the districts of Belgaum, Bijapur, Gulbarga and Raichur is classified as backward and the *per capita* income of population in the area is quite low. It is Rs. 299 in Belgaum Rs. 243 in Bijapur, Rs. 257 in Gulbarga and Rs. 267 in Raichur District. The gross return *per capita* will increase to Rs. 497 in Belgaum Rs. 761 in Bijapur and Rs. 653 in Gulbarga and Rs. 885 in Raichur District giving an average *per capita* income of Rs. 700 for these areas. In addition to the increase in the yield of

crops and income there are various other benefits in the form of fuller employment to the farmers their families and other workers in the rural area and also it promotes dairy production and other protective, animal and vegetable foods. Major schemes, namely, (1) Upper Krishna Project Stages (II and III) (2) Bijapur Lift Irrigation Scheme (3) Bhima Irrigation Scheme (4) Bhima Lift Irrigation Scheme (5) Ghataprabha Project Stage IV, have been in various stages of investigation and the agronomic advantages which will accrue by the implementation of these schemes, can be very well anticipated and these schemes deserve a place of high priority. Rich soil responsive to irrigated agriculture under the direct management of farmers who have faith in the agriculture and who are conscientiously devoted to their land all these factors can bring about rapid and remarkable change in the land and the people.

18.8. Over and above the direct benefits discussed in the foregoing paragraphs, various indirect benefits would also accrue to the rural community in the area. The growing of commercial crops in the area will facilitate the establishment of a number of agro-industries such as Sugar mills and Cotton spinning mills and various kinds of processing factories. Thus, introduction of irrigation will bring in its fold, prosperity in place of poverty and as such Mysore State cannot curtail its requirements in irrigation in the Krishna Valley.

19. *Justification of Maharashtra Schemes.*—It appears from the accompaniments to the Maharashtra Note that on receipt of the proposal for westward diversion, the Central Water and Power Commission examined the same in detail and suggested certain alternative sites to meet the needs of works land for irrigation purposes in the southern part of Ratnagiri District. The Maharashtra Government was then

requested to examine further the suggestions in this regard made by the Central Water and Power Commission. The Central Water and Power Commission had suggested certain alternative sites so as to improve the benefit-cost ratio by bringing down the cost of storage as far as possible. The Maharashtra Government after examining these suggestions has reported to the Central Water and Power Commission that their proposal were not found useful as substitute for their original schemes and that they were in fact supplemental to them. This reply was based on the consideration that the west-flowing rivers had a utilisable water potential of only 39 TMC. ft. while the land available for irrigation purposes was as much as 4.33 lakh acres. The Maharashtra Government goes on to show, on the basis of the particulars from one fully investigated project, that, excluding those projects whose unit storage costs were abnormally high, even the more favourable ones could not come near enough to the point of meeting their requirements as their storages by themselves were going to be inadequate unless they were supplemented by the westward diversion from the East flowing rivers. In coming to this conclusion, the Maharashtra Government has assumed a mixed crop pattern consisting of Sugarcane, Summar Paddy, Garden, Chillies, Cotton and Groundnut, based on a 90 per cent dependable flow for all crops comprising of 78 per cent of the area and with 75 per cent dependable flow only in the remaining 22 per cent of the area. Attention may be drawn here to a very important recommendation made by the Krishna-Godavari Commission in its report, to the effect that under storage projects the crop pattern should aim at securing the maximum advantage from the supplies by rain and to draw only the minimum requirement from the stored water. This suggestion has a special application to the schemes proposed by Maharashtra. It was, more appropriate, according to this recommendation, to adopt a single crop of paddy instead of a mixed pattern, which would then have

required assistance of only one or two waterings during dry spells and which would have been easily provided from small storages. It is apparently on account of this excessive provisions that the benefit-cost ratio has turned out to be unduly low and on which the Government of Maharashtra has tried to build up a case for westward diversion. It would not be out of place to point out that the southern part of Ratnagiri District for which extensive irrigation is being contemplated by Maharashtra, is not quite unlike the Malnad area of Mysore State, especially in the contiguous Districts of North and South Kanara. If the Maharashtra Government notwithstanding these peculiar conditions of the coastal areas, have designed their schemes for a mixed crop pattern, it could be with no other intention than to justify their proposal for the westward diversion. It is interesting to observe that the Maharashtra Government Note commenced with a plea for the irrigation of Paddy crop with only the limited object of filling the gaps during the dry spells of rainfall period and after helpful suggestions from the Central Water and Power Commission in meeting this specific requirements, ended up with an entirely different case from the original one, wherein mixed crop pattern with an unusual dependability has been put forward. This Committee was rather handicapped in examining the contention of the Maharashtra Government that the schemes suggested by the Central Water and Power Commission were supplemental to their original proposals rather than substitutional on account of the particulars of detailed investigations not having been furnished. Notwithstanding the absence of such technical details, the remarks contained in the accompaniments to the Maharashtra Government Note are an unmistakable indication that the technical aspects on which the conclusions have been drawn, cannot stand the test of justification from the point of view of approved practices and accepted techniques in irrigation projects. The assumption of 90 per cent dependability for perennial

crops in a region of high and assured rainfall and a mixed crop pattern in place of the single crop are some of the features responsible for making Maharashtra's schemes of West-flowing rivers unduly costly. It is obvious that there have been later thoughts with the sole purpose of justifying the proposal for westward diversion.

20. *Needs of 'warkas' Lands*: 20.1 The Committee felt that the consideration of alternative sources for the irrigation of 'Warkas' lands in the Ratnagiri District was not strictly the concern of Mysore. Moreover the suggestion of an alternative source implies the acceptance of the needs for irrigation. The areas in Ratnagiri are similar to the Malnad areas of Mysore where paddy, under identical conditions is being grown for centuries. The Committee has not been convinced of the necessity for extensive irrigation in these coastal regions where soil, rainfall, climate and the prevailing agricultural practices are all helpful for the raising of paddy. The rainfall is plentiful during the cropping season except perhaps for small periods of dry spells. The soil is only suitable in certain limited areas confined to low lying regions. The higher areas are inherently unsuitable for irrigation purposes and paddy is being grown as the only major crop. It would involve an extra ordinary amount of time, labour and resources, both of the Government and the people if such large areas have to be brought under the irrigated agriculture. In any case, storage reservoir designed to irrigate a mixed crop pattern, when all indications at present are against it, cannot be regarded as anything but an adventure and is certainly contrary to the recommendations of the Krishna-Godavari Commission's report.

20.2. The contention that the water resources of the west flowing rivers in the southern part of Ratnagiri District are not adequate for the irrigation needs can hardly be convincing when viewed in its proper perspective. The needs of the area are, simply, those required to protect the Khariff crops

during periods of dry spell. On the basis of a rough estimate the six west flowing rivers to the South of Ratnagiri, can yield as much as 414 TMCft. A statement showing the west flowing rivers South of Ratnagiri District, their catchment areas, yields, etc., are given in Appendix No. VIII. The water requirement of the 3.57 lakh acres proposed to be irrigated with the contemplated crop pattern is stated to be 136 TM Cft. which represents only about 33% of the available resources. With a more realistic crop pattern, it can be considerably smaller and can easily be met from the resources of the west flowing rivers themselves. If water is scarce, the quantity of water available should determine the extent of area to be irrigated and not *vice versa* as proposed in the Maharashtra note. If availability of irrigable area were to determine the quantity of water to be provided, it would be legitimate to ask why it should not be applied to the vast tracts in the Krishna in this State.

20.3. Above all, the Government of Maharashtra is well aware that the needs of Mysore are, like those of Maharahstra more than what can be anticipated. To suggest an extra-basin diversion, ostensibly for irrigation, but undoubtedly for power, will only mean that it is a certain attempt in circumventing the accepted and respected principle that the needs for irrigation especially in the backward areas or scarcity affected areas within the valley should have a priority over the needs for Hydel Power. The suggestion for westward diversion amounts, in clear words, to a disservice to the cause of the suffering humanity in the Krishna basin.

21. *Exploitation of Local Resources Fully.*—The Government of Mysore will, no doubt, appreciate the eagerness and anxiety of the Government of Maharashtra for the development of the backward areas in the latter. Such development, however, must necessarily emerge from an intelligent planning

and a proper husbanding of all the resources available in that region. The southern part of Ratnagiri has a long coast line extending over 100 miles. The coastal belt comprises of a good proportion of forests and large areas have been successfully developed for fruit cultivation. It may not be difficult to meet the Power needs for such industries as may be contemplated in this region by harnessing the west-flowing rivers themselves for Hydel Power. Therefore, when large areas in the Mysore State have been suffering and suffering for centuries for lack of water to secure the minimum standards of agricultural production and economic life, Mysore obviously cannot agree to a westward diversion of Krishna waters.

22. *Summary of Recommendations.*—1. Mysore State cannot agree to any westward diversion of Krishna waters as the Krishna Valley itself is in need of the entire supply from the river for irrigation of arid and scarcity tracts within the basin itself.

2. The irrigation projects in Mysore State in Krishna basin like Ghataprabha stage III and IV, entire Upper Krishna Project, Bijapur Lift Irrigation Scheme, etc., which irrigate vast scarcity-affected tracts in Bijapur and Gulbarga Districts will get a severe blow and may not see the light of day even in parts thus keeping the percentage of irrigation permanently as low as only 6 to 8 per cent, in case any westward diversion is to materialise.

3. On the same analogy that Maharashtra is contemplating to benefit as large an area as 9 to 10 lakh acres in Sholapur District. it would be unconvincing to deny irrigation benefits to Bijapur District by their proposed westward diversion of Krishna waters.

4. It is possible to produce nearly double the food crops like rice, jowar, etc., in Bijapur and Gulbarga tracts than that in Ratnagiri District from the same quantity of water in the larger interest of the country.

5. In an attempt to establish priority of needs of Ratnagiri District over those of Bijapur District, a comparison is made by Maharashtra Government between the two Districts. Such a comparison is invidious as the two Districts are entirely different in agricultural, economic and other respects and do not warrant identical solutions.

6. The Maharashtra State would do well if they utilise their 'Warkas' lands (which are porous and situated at high levels) for raising fruit gardens economically and restrict growing of superior variety of paddy only to low lying areas. To achieve this, Maharashtra State can harness all their west-flowing rivers in Ratnagiri District if at all they want any supplemental irrigation and as such there is no justification for westward diversion.

7. The average yield per acre, as at present in Bijapur is of the order of one quintal per acre. Such a poor yield is mainly due to scarcity of rainfall and if irrigation facilities, are provided the yield per acre will improve to about 8 quintals and consequently the *per capita* income from Rs. 243 to Rs. 761.

8. The Maharashtra State would do well to exploit the hydel potential of some of the west-flowing rivers for their requirement of Power in this irrigation. In case additional Power is required other sources for power generation can be availed of, thus saving precious and scarce Krishna waters for irrigation for which there are no alternative sources.

Sd.
1. (L. T. AMINBHAVI)
Chairman.

Sd.
2. (I. M. MAGDUM)
Member.

Sd.
3. (M. V. ASWATHANARAYANA SETTY)
Member.

Sd.
4. (Dr. H. R. ARKERI)
Member.

Sd.
5. (N. P. PATIL)
Member.

Sd.
6. (S. P. BHAT)
Member-Secretary.

Acknowledgement.—The Chairman of the Committee to go into the availability of water of Krishna river for utilisation in Mysore State places on record his appreciation of the uniform and whole-hearted co-operation extended by all the members. Dr. Arkeri, Joint Director of Agriculture was as a result of a road accident, temporarily incapacitated from attending the sixth meeting of the Committee and the tour of the Krishna basin which proceeded the finalisation of the draft Report. However he went through the Report and made useful suggestions.

His alternative, Dr. H. L. Kulkarni, Joint Director of Agriculture (Extension) joined the tour of the Members in some areas of the Krishna basin. During the course of the tour in the Belgaum, Bijapur, and Gulbarga Districts, useful information statistical and otherwise, was furnished by the local Officers of several Departments. Shri V. L. Narayan, Superintending Engineer (Designs), from the Office of the Chief Engineer, Irrigation Projects, Shri A. V. Shankara Rao, Executive Engineer (Planning), Shri V. T. Arasu, Assistant Engineer, from the office of the Chief Engineer Investigation of Projects and Shri M. S. Panduranga Vittal, Assistant Engineer, from Chief Engineer, Irrigation Projects office deserve special mention for their interest and devoted work in the preparation of this Report.

APPENDIX I

PROCEEDINGS OF THE GOVERNMENT OF MYSORE, P. W. D.

Subject :—Constitution of a committee to go into the availability of water of Krishna River for utilisation in Mysore.

Preamble :—Government of Mysore have all along been contemplating to utilise as much of waters of Krishna and its tributaries for the benefit of the people in the Krishna Basin in general and those affected by scarcity and famine in particular. With this end in view, a number of projects like Ghataprabha Malaprabha and Upper Krishna etc., have been investigated. However, since some time certain suggestions are being made to divert waters of the Upper Krishna and Ghataprabha towards Arabian Sea for Power generation and also to utilise some portion thereof for irrigation. It is therefore, found necessary to examine.

(*a*) Whether any surplus waters for such diversion to Arabian Sea are available even after meeting fully the needs of Irrigation requirements in the Upper Krishna and Ghataprabha valleys.

(*b*) Relative agronomic advantages gained by utilising the Krishna Water for Irrigation in Bijapur, Gulbarga, Belgaum and Raichur areas.

(*c*) *Per capita* income as at present in these areas and as would accrue after utilising these waters.

(*d*) Availability of alternative sources of water to irrigate "WARKAS" lands in Ratnagiri District.

Government Order No. P. W. D. 35 GMS 65 Bangalore dated the 22nd May 1955.

Government are pleased to constitute a committee of the following Officers.

1. Chief Engineer, Investigation—Chairman.
2. Chief Engineer, Investigation Projects—Member.
3. Dr. H. R. Arkeri, Joint Director of Agriculture. (Extention). If Dr. H. R. Arkeri proceeds abroad Shri H. L. Kulkarni will attend to the former return.

4. Shri N. P. Patil, Research Officer, Farm Management Scheme, Hebbal, Member.

5. Shri S. P. Bhat, Superintending Engineer. Secretary.

The Committee will examine the problem with particular reference to the issues mentioned in the preamble and submit its report within a period of three months.

By Order and in the name of the Governor of Mysore.

Sd/

(M. CHANNAPPA)

Deputy Secretary to Government, Public Works Department.

Government Order No. P. W. D 35 G M S 65 Dated 24th July 1965.

Government are pleased to nominate the Chief Engineer, (Investigation of Hydro Electric Projects) as an additional Member to the Committee constituted in Government Order No. P W D 35 G M S 65 dated 22nd May 1965 referred to above.

By Order and in the name of the Governor of Mysore.

Sd/.

(M. CHANNAPPA)

Deputy Secretary to Government, Public Works Department.

APPENDIX II

STATEMENT SHOWING THE AYACUT AND THE WATER REQUIREMENTS OF MAJOR, MEDIUM AND MINOR IRRIGATION SCHEMES IN KRISHNA BASIN IN MYSORE STATE AS ASSESSED IN 1962.

		Area Irrigated Lakhs Acres.	*Water requirements T.M. CFT.*
A.	Old Works	3.73	92.00
B.	New works taken up after 1947, and which have commenced to operate.	16.00	280.00
C.	New works taken up but which have not commenced to operate.		
	OR		
	Works contemplated for the future (including Minor Irrigation works)	50.30	754.00
D.	Water supply needs and Industrial demands	—	124.00
	Total	70.03	1250.00

(*Note.*—For details see statement given below).

A. WORKS IN OPERATION PRIOR TO 1947.

Sl. No.	Schemes	Irrigated area in thousand acres	Water required in TM. CFT.
1.	Pre-Moghul Channels on Tungabhadra ...	28.91	13.70
2.	Vanivilas Sagar	21.50	8.27
3.	Gokak Canal System	14.20	1.37
4.	Anjanapur Reservoir	15.47	2.20
5.	Dharma Canal System ...	9.77	0.69
6.	Bhadra Anicut	10.50	3.00
7.	13,000 and odd minor works (Tanks and Channels)	272.60	62.33
	Total	373.00	91.86
			say 92.00

B.—WORKS SANCTIONED AFTER 1947 AND WHICH HAVE COME UNDER OPERATION PARTLY OR FULLY.

Sl. No.	Schems	Irrigated area in thousand acres	Water required in T.M. Cft.
1.	Tungabhadra Right and Left Bank Canal Project	672.34	121.00
2.	Ghataprabha Right and Left Bank Canal Project	596.00	72.00
3.	Bhadra Reservoir including Devarabilikere Project	241.57	62.00
4.	Tunga Anicut Project	27.54	11.50
5.	Lower Tungabhadra Project (Rajolibunda)	5.88	1.15
6.	Kalaskop Tank	2.82	0.27
7.	Areshankar Tank	3.06	0.28
8.	Ramanahalli Tank	4.80	0.43
9.	Kolchi Wier	3.15	3.00
10.	Minor works (Lump)	50.50	7.69
	Total	1607.36	279.32
			say 280.00

C—WORKS UNDER CONSTRUCTION WHICH HAVE NOT YET COME UNDER OPERATION TILL MARCH 1961, OR CONTEMPLATED AND FUTURE WORKS.

Sl. No.	Scheme	Irrigated area in thousand acres	Water required in T.M. Cft.
1.	Tungabhadra High Level Canal Scheme	136.50	19.00
2.	Malaprabha Project	300.00	37.20
3.	Hagaribommanahalli Project	7.85	1.97
4.	Dharma Reservoir Project	12.80	1.00
5.	Ambligola Reservoir Project	7.30	1.32
6.	Harinala Reservoir Project	10.75	0.83
7.	Jambadahalla Reservoir Project	6.00	0.60
8.	Hathikoni Project	5.30	0.44

(Table continued)

Sl. No.	Scheme	Irrigated area in thousand acres	Water required in T.M. Cft.
9.	Kanakanala Project	5.10	0 37
10.	Nagathana Tank Project	1.60	0.08
11.	Chandrampally Project	10.50	1.57
12.	Chitwadgi Tank Project	2.10	0.20
13.	Upper Krishna Project	1200.00	226.00
14.	Bijapur Lift Irrigation Scheme	850.00	130.00
15.	Bhima Lift Irrigation Scheme	100.00	16.00
16.	Upper Tungabhadra & Tunga Reservoir Projects	460.00	76.00
17.	Ghataprabha H.L.C. Project including intensification	166.00	39.00
18.	Benithora Project	60.00	10.00
19.	Bhima Irrigation Scheme	100.00	18.00
20.	Varada Irrigation Scheme	20.00	4.26
21.	Upper Malaprabha (Bhutewadi)	45.00	10.00
22.	Extension of Bhadra Anicut Channels	15.00	5.00
23.	Kagna Project	40.00	3.74
24.	Mullmari Project	24.20	3.43
25.	Markendeya Reservir Project ..	31.70	3.50
26.	Don River Project	25.00	3.00
27.	Dandavathi Project	8.00	2.50
28.	Amarja Project	16.50	2.36
29.	Madag Masoor Project	24.07	2.03
30.	Diksanga Diversion Weir Scheme....	6.80	1.20
31.	Sattinala Project	5.75	0.54
32.	Maski Nala Project ...	3.63	0 44
33.	Balkundi Tank Project	2.78	0.32
34.	Hire-Nala Project	3.75	0.34
35.	Mudhole Reservoir Project	2.90	0.28
36.	Hirehalla Reservoir Project	1.96	0.27
37.	Rangasamudra Tank Project	2.10	0.25
38.	Morat Stream Project	1.47	0.17
39.	Hosakere Tank Project	1.50	0 15
40.	Benkandoni Tank Project	1.50	0.15
41.	Majjur Tank Project	1.26	0.14
42.	Kohalli Tank Project	1.05	0.11
43.	Hathigud Stream Project	0.60	0.06
44.	Kolhar Tank Project	0.60	0.06
45.	Rakasagi Tank Project ...	0.45	0.05
46.	Minor works (Lump)	1300.00	130.00
	Total	5029.40	754.00

APPENDIX III

STATEMENT SHOWNIG THE AYACUT AND THE WATER REQUIREMENTS OF MAJOR, MEDIUM AND MINOR IRRIGATION SCHEMES IN KRISHNA BASIN IN MYSORE STATE AS PER PRESENT REQUIREMENTS (AUGUST 1965)

Sl.No.	Particulars	Area irrigated (Lakh acres)	Water requirements in T.M.Cft.
1.	Works existing prior to 1947	3.73	92.00
2.	Works sanctioned after 1947 and upto 1951	13.09	239.71
3.	Works sanctioned in I, II and III, Plans (Major and Medium Irrigation Projects only).	16.27	279.29
4.	Projects proposed in the IV Five Year Plan	10.17	173.00
5.	Projects in the V and subsequent plans	17.50	412.00
6.	Minor Irrigation Works	13.00	130.00
7.	Water supply needs and Industrial Demands	....	124.00
	Total	73.76	1,450.00
	Say	74.00 lakhs.	

(*Note.*—For details please see statement given below).

Sl.No.	Particulars	Area irrigated (in thousand acres)	Water requirements in T.M.Cft.
1.	*Works (existing prior to 1947)*		
	(i) 6 Medium works and 13,000 old Minor tanks	373.00	92.00
2.	*Works sanctioned after 1947 and upto 1951*		
	(1) Tungabhadra Right and Left Bank Canal.	672.34	121.00
	(2) Ghataprabha Left Bank Canal	298.00	36.00
	(3) Bhadra Reservoir Project	241.60	61.00
	(4) Tunga Anicut	27.20	9.00
	(5) Kolchi Weir ...	3.15	3.00
	(6) Rajolibunda	5.90	1.10
	(7) 3 Medium Tanks and Minor works	61.18	8.61
		1309.37	239.71

(Continued)

Sl.No.	Particulars	Area irrigated (in thousand acres)	Water requirements in T.M.Cft.
3.	*Works sanctioned in I, II and III Plans— (Major and Medium Irrigation Project only)*		
	(1) Tungabhadra High level Canal Stage I	70.30	9.50
	(2) Hagaribommanahalli Project	7.90	2.00
	(3) Dharma Reservoir Project	13.20	1.00
	(4) Harinala Project	10.80	0.83
	(5) Ambligola Project	7.30	1.42
	(6) Jambadahalla Project	6.00	0.64
	(7) Hattikoni Project	5.30	0.45
	(8) Nagathana Tank Project	1.60	0.08
	(9) Kanakanala Project	5.10	0.37
	(10) Upper Krishna Project	1200.00	226.00
	(11) Malaprabha Project	300.00	37.00
		1627.50	279.29
4.	*Projects proposed in the IV Five-Year Plan—*		
	(1) T.B.P. High Level Canal Stage II	66.20	17.50
	(2) Bhima Irrigation Scheme	100.00	18.00
	(3) Ghataprabha Project Stage III	298.00	40.00
	(4) Upper Tungabhadra Project	210.00	85.00
	(5) Tunga Reservoir Project	250.00	
	(6) Balkundi Project	2.78	0.32
	(7) Chitwadgi Project	2.20	0.27
	(8) Hirenala Tank Project (Hovlapur) and Pur sites)	3.75	0.34
	(9) Maskinala Tank Project	3.63	0.44
	(10) Kohalli Tank Project	1.05	0.11
	(11) Sattinala Project	5.75	0.54
	(12) Majjur Tank Project	1.26	0.14
	(13) Amarja Project ...	16.50	2.36
	(14) Feeder Channel to Ranikere	10.00	1.20
	(15) Feeder Channel to Dharmapur Tank	10.00	1.20
	(16) Dandavathi Reservoir Project	8.00	2.50
	(17) Madag Masur Tank Project	25.43	2.29
	(18) Haihole Project	2.50	0.46
		1017.05	172.67
	Say	1017.00	173.00

Sl. No.	Particulars	Area irrigated (in thousands acres)	Water requirements in TM. Cft.
5.	*Projects in the 5th and Subsequent Plans.—*		
(1)	Ghataprabha Project (Stage IV)....	166.00	39.00
(2)	Bijapur Lift Irrigation Scheme	850.00	130.00
(3)	Bhima Lift Irrigation Scheme	100.00	16.00
(4)	Upper Krishna Project (Final Stage)	200.00	149.00
(5)	Varada Irrigation Scheme	150.00	32.00
(6)	Markandeya Reservoir Project	11.70	3.50
(7)	Bhutewadi Scheme (Upper Malaprabha)	45.00	10.00
(8)	Don River Scheme	25.00	3.00
(9)	Diksanga Project	6.80	1.20
(10)	Kagna Project	40.00	3.74
(11)	Mullamari Project	24.20	3.43
(12)	Bennitora Project	60.00	10.00
(13)	Extension of Bhadra Anicut Channels	15.00	4.37
(14)	Hirehalla Reservoir Project	1.95	0.27
(15)	Kolhar Tank Project	0.96	0.08
(16)	Mudhole Project	2.90	0.28
(17)	Benkandoni Tank Project	1.50	0.15
(18)	Rakkasagi Tank Project	0.45	0.05
(19)	Rangasamudra Tank Project	2.10	0.25
(20)	Hosakere Tank Project	1.50	0.15
(21)	Madakasirur Tank Project	1.32	0.15
(22)	Morat Scheme	1.47	0.17
(23)	Hattigudda Scheme	0.60	0.06
(24)	Kallivoddahalla Project	3.10	0.54
(25)	Mavinahole Project	2.10	0.36
(26)	Naimuttadahalla Project	1.50	0.20
(27)	Tolehalla Project	1.60	0.36
(28)	Bellary Nalla Scheme	20.00	2.00
(29)	Tank near Kadlewad	0.75	0.06
(30)	Lift Irrigation on Tungabhadra	0.70	1.44
(31)	Mundwad Tank Project	0.40	0.05
(32)	Janakatti Tank Project	0.60	0.15
		1750.00	412.00
6.	*Minor Irrigation Works*	1300.00	130.00
7.	*Water supply needs and Industrial Demands*	....	124.00

APPENDIX IV

STATEMENT SHOWING THE STATEWISE AREAS AND THE SUB-BASINS AND THE ANTICIPATED YIELD BASED ON K. G. COMMISSION REPORT

Sl. No.	Sub-basin		Area in Sq. Miles				Anticipated yield in T.M.C.			
			Maharashtra	Andhra Pradesh	Mysore	Total	Maha-rashtra	Andhra Pradesh	Mysore	Total
1	2		3	4	5	6	7	8	9	10
1	Upper Krishna	(K. 1)	6,630	...	309	6,939	513	....	37	550
2	Middle Krishna	(K. 2)	666	...	6,113	6,779	3	....	32	35
3	Ghataprabha	(K. 3)	754	....	2,655	3,409	90	....	100	190
4	Malaprabha	(K. 4)	57	....	4,402	4,459	7	....	63	70
5	Upper Bhima	(K. 5)	17,455	....	331	17,786	398	....	2	400
6	Lower Bhima	(K. 6)	1,449	877	7,132	9,478	8	5	42	55
7	Lower Krishna	(K. 7)	...	13,247	701	13,948	....	206	4	210
8	Tungabhadra	(K. 8)	...	3,131	15,335	18,466	....	23	497	520
9	Vedavathi	(K. 9)	...	2,073	7,035	9,108	....	12	38	50
10	Musi	(K. 10)	...	4,329	....	4,329	....	50	....	50
11	Palleru	(K. 11)	....	1,260	....	1,260	....	17	....	17
12	Muneru	(K. 12)	...	4,019	....	4,019	....	70	....	70
	Total	....	27,061	28,906	44,013	99,980	1,019	383	815	2,217

APPENDIX V

STATEMENT SHOWING THE YIELDS AT VARIOUS POINTS OF KRISHNA SYSTEM

River	Total yield in TMCft as per K.G. Commission	Utilisation in T. M. Cft.			Westward diversion T.M.Cft.	Total of Columns 5 & 6 in T.M.Cft.	Balance yield in T.M. Cft.	Remarks
		By Maharashtra	By Mysore State	Total for irrigation				
1	2	3	4	5	6	7	8	9
1. Ghataprabha river at Maharashtra border.	90.00	2.60	....	2.60	30.50	33.10	56.90	Balance shown under Col. 8 has not taken into account the downstream requirements.
2. Ghataprabha river at Dhupdal Weir.	141.10	2.60	119.00	121.60	30.50	152.10	(—) 11.00	
3. Ghataprabha river at Krishna Confluence.	190.00	2.60	123.20	125.80	30.50	156.30	33.70	
4. Krishna river at Maharashtra border.	550.00	238.24	....	238.24	258.80	497.04	52.96	
5. Krishna river at Sidri site	562.10	238.24	130.00	368.24	258.80	627.04	(—) 64.94	
6. Krishna river at Almatti site	758.10	238.24	409.20	647.44	289.30	936.74	(—)178.64	
7. Krishna river at Siddapur site	829.00	238.24	654.40	892.64	289.30	1181.94	(—)352.94	
8. Bhima river at Maharashtra border.	398.00	293.90	....	293.90	4.70	298.60	99.40	
9. Bhima river at Confluence with Krishna.	455.00	293.80	73.90	367.70	4.70	372.40	82.60	

APPENDIX VI

STATISTICS OF LAND USE AND EXISTING PATTERN OF CULTIVATION IN THE NORTHERN TALUKS OF BIJAPUR DISTRICT, MYSORE STATE

Sl. No.	Particulars			Area in Acres
1	Total area	....	....	26,03,182
2	Cultivable area	....	...	24,52,878
3	Cropped area	....	....	23,12,987

Percentage of cropped area under rainfed conditions and Estimated value of gross produce per hundred acres under rainfed conditions in the Northern Taluks of Bijapur District.

TABLE (a)

Sl. No.	Name of crop	Average cropped area acres	Produce per acre (in lbs)	Total Produce in Maunds	Rate per Maund	Value of gross produce in Rs.
1.	Jawar (Kharif, and Rabi).	48	242	141	14.10	1,988
2.	Groundnut	6	477	35	23.26	814
3.	Bajra	23	220	62	16.57	1,027
4.	Cotton	13	164	26	32.00	832
5.	Wheat	5	173	11	19.77	217
6.	Pulses	5	176	11	21.76	239
	Total.	100				5,117

TABLE (*b*)

Annual Expenses Per 100 *Acres*

Sl. No.	Name of crop	Seeds		Manure		Hired Labour human and Bullock	
		% produce-Gross Rs.		Rate per acre	Rs.	Rate per acre	Rs.
1	Jawar	1	19.88	6.5	312	22.50	1080
2	Groundnut	10	81.40	9.0	54	22.50	156
3	Bajra	1	10.27	—	—	11.00	253
4	Cotton	3	24.96	16.00	208	22.50	310
5	Wheat	1	2.17	7.00	35	11.00	55
6	Pulses	½	1.20	—	—	11.00	55
			139.88				
		or say	140.00		609		1909
		Grand Total Rs. 2658.00					

I. Gross Receipts :—

(1) Gross value of Farm produce according to Column 7 of table (*a*)	....	Rs.	5,117
(2) Adding receipts at 30% of the expenses of fodder estimated at 15% of the gross value of the produce....		Rs.	230
Total gross receipt.		Rs.	5,347

II. Expenses :—

(1) Expenditure on seeds, mannure and hired labour as per Column 9 of the table (*b*)	....	Rs.	2658.00
(2) Fodder expenses at 15% of the gross value of the produces.	...	Rs.	768.00
(3) Expenditure on depreciation of implements at 2.7% of gross value of produces.	....	Rs.	138.00
(4) Share and cash rent of the total gross produce at 5%....		Rs.	256.00
(5) Land revenue at 2% of gross value of produces.	....	Rs.	102.00
Total Expenses		Rs.	3922.00

III. Net Value of Produce per 100 Acres.

Total gross receipts.	....	Rs. 5,347
Deduct total expenses	....	Rs. 3,922
Net value of produce per 100 acres.		1,425
Net value of Produce per Acre =		*Rs. 14.25*

Average cropped area of the Northern taluks of Bijapur District per annum = 23, 12, 987 acres.
Therefore total agricultural income Rs. 3, 29, 60, 065.
Population of northern Taluks of Bijapur District 8, 82, 040.
Net Agricultural Income Per Capita *Rs. 37.35*

APPENDIX VII.

STATEMENT SHOWING THE NORMAL RAINFALL (IN m. m.) STATISTICS OF BIJAPUR, GULBARGA, EASTERN PARTS OF BELGAUM AND RAICHUR DISTRICTS OF MYSORE STATE AND RATNAGIRI DISTRICT OF MAHARASHTRA STATE

Sl. No.	District	Jan.	Feb.	March	April	May	June	July	August	September	October	November	December	Total Normal rainfall	No. of rainfall days	Remarks
1.	Bijapur	2·8	2·8	6·3	23·6	37·0	1·3	66·2	71·2	152·9	88·8	36·1	7·9	569·9	40	
2.	Gulbarga	4·7	8·2	7·6	23·9	28·2	11·4	....	....	175·4	61·8	20·8	....	717·7	49	
3.	Eastern parts of Belgaum	1·7	1·9	7·6	35·5	52·6	79·5	94·0	72·9	111·8	110·0	39·9	8·0	615·4	49	Report on Rainfall of Mysore State for 1961.
4.	Raichur	2·9	3·5	5·4	16·6	35·3	2·2	89·6	106·3	138·2	71·4	25·1	2·8	279·3	34	
5.	Ratnagiri	2·0	0·8	1·0	0·7	36·5	82·8	1108·5	649·6	335·3	126·2	29·8	3·3	3105·0		From Monthly Rain-fall of India 1952.

APPENDIX VIII

STATEMENT SHOWING YIELD OF WEST FLOWING RIVERS (SOUTH OF RATNAGIRI) IN MAHARASHTRA STATE

Sl. No.	Name of River	Total Basin area Sq.Miles	Average Rainfall inches	Yield from River Basin M.Cft.	Remarks
1	Local Stream	224	118	46,240	
2	Local Stream	224	118	46,240	Run-off is taken at
3	Karli River	240	127	53,120	75% of average rain-
4	Gad	288	127	63,680	fall obtained from
5	Local Stream	192	127	42,560	isohyetose.
6	Vaghotan	256	127	56,640	
7	Jambda	160	118	32,960	
8	Machkundi	192	118	39,520	
9	Kajvi	160	118	32,960	
	Total	1,936		4.13,920 T.M. Cft.	

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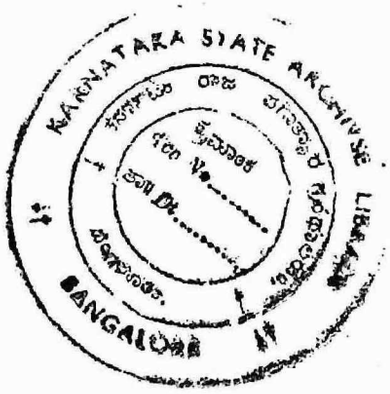

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